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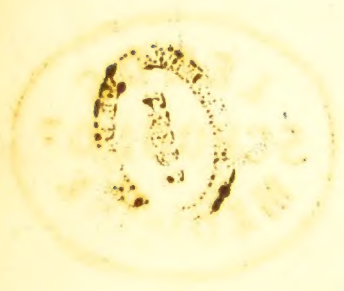


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THE
ZOOLOGIST'S TEXT-BOOK.



THE UNIVERSITY OF CHICAGO



THE
ZOOLOGIST'S TEXT-BOOK,

EMBRACING THE CHARACTERS

OF THE

CLASSES, ORDERS, AND GENERA,

OF ALMOST THE

Whole Animal Kingdom;

TOGETHER

WITH AN EXAMPLE OF A SPECIES OF NEARLY EACH GENUS, AND A
COMPLETE GLOSSARY OF TECHNICAL TERMS.

By CAPTAIN THOMAS BROWN,

FELLOW OF THE LINNEAN SOCIETY, MEMBER OF THE WERNERIAN, KIRWANIAN,
AND PHRENOLOGICAL SOCIETIES, PRESIDENT OF THE ROYAL PHYSICAL
SOCIETY, &c. &c. &c.

IN TWO VOLUMES.

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TO

GEORGE COMBE, ESQ.

AUTHOR OF A SYSTEM OF PHRENOLOGY, &c. &c. &c.

THE FOLLOWING WORK

IS INSCRIBED, AS A MARK OF ESTEEM,

FOR HIS DISTINGUISHED TALENTS AS A WRITER,

HIS PHILANTHROPIC ZEAL,

AND HIS MANY EXCELLENT QUALITIES IN PRIVATE LIFE,

BY HIS OBEDIENT FRIEND AND SERVANT,

THOMAS BROWN.

Edinburgh, November, 1832.



CONTENTS.

PREFACE,	Page xi
Introductory,	13

TABULAR VIEW OF THE ANIMAL KINGDOM.

DIVISION I.—VERTEBRATE ANIMALS.

CLASS FIRST.—MAMMALIA,	25
Order I.—Bimana,	25
II.—Quadrumanæ,	31
III.—Carnassiers,	47
IV.—Feræ,	68
V.—Marsupialia,	90
VI.—Rodentia,	97
VII.—Edentata,	114
VIII.—Pachydermata,	119
IX.—Ruminantia,	127
X.—Cetacea,	144

CLASS SECOND.—BIRDS,	151
Order I.—Rapaces,	158
II.—Omnivorous Birds,	167
III.—Insectivorous Birds,	178
IV.—Granivorous Birds,	198
V.—Zygodactylous Birds,	207
VI.—Anisodactyli,	217
VII.—Alcyones,	224
VIII.—Chelidones,	226
IX.—Columbæ,	228
X.—Gallinæ,	229
XI.—Alectroides,	240

	Page
Order XII.—Cursores,	242
XIII.—Grallatores,	245
XIV.—Pinnatipedes,	263
XV.—Palmipedes,	266
XVI.—Inertes,	282
CLASS THIRD.—REPTILES,	283
Order I.—Chelonia,	285
II.—Sauria,	288
III.—Ophidia,	297
IV.—Batrachia,	306
CLASS FOURTH.—FISHES.	311
Order I.—Cyclostomi,	313
II.—Selachii.	314
III.—Sturiones,	319
IV.—Plectognathi,	320
V.—Lophobranchii,	323
VI.—Malacopterygii Abdominales,	324
VII. ————— Subrachiati,	336
VIII. ————— Apodes,	341
IX.—Acanthopterygii,	344

DIVISION II.—INVERTEBRAL ANIMALS.

CLASS I.—MOLLUSCA.	
Order I.—Heteropoda,	376
II.—Cephalopoda,	377
III.—Trachelipoda,	387
IV.—Gasteropoda,	415
V.—Pteropoda,	427
CLASS II.—CONCHIFERA,	429
Order I.—Monomyaira,	430
II.—Dimyaira,	441
CLASS III.—CIRRIPEDA,	460
Order I.—Pedunculata,	469
II.—Sessilia,	471

DIVISION III.—ARTICULATA.

CLASS V.—ANNELIDES,	474
Order I.—Sedentariæ,	474
II.—Antennariæ,	480
III.—Apodes,	484
CLASS VI.—CRUSTACEA,	486
Order I.—Decapoda,	486
II.—Stomapoda,	495
III.—Læmodipoda,	495
IV.—Amphipoda,	496
V.—Isopoda,	497
VI.—Laphyropoda,	500
VII.—Phyllopoda,	500
VIII.—Xyphosura,	501
IX.—Siphonostoma,	501
CLASS VII.—ARACHNIDES,	501
Order I.—Pulmonariæ,	502
II.—Tracheariæ,	507
CLASS VIII.—MYRIAPODA,	509
Order I.—Chilognatha,	510
II.—Chilopoda,	511
CLASS IX.—INSECTS,	512
Order I.—Thysanoura,	513
II.—Parasita,	514
III.—Syphonaptera,	515
IV.—Coleoptera,	516
V.—Orthoptera,	528
VI.—Hemiptera,	532
VII.—Neuroptera,	536
VIII.—Hymenoptera,	538
IX.—Lepidoptera,	541
X.—Strepsiptera,	543

	Page
Order XI.—Diptera,	543
DIVISION IV.—RADIATA.	
CLASS X.—ECHINODERMATA,	547
CLASS XI.—TUNICATA,	550
Order I.—Ascidaria,	550
II.—Bothyllaria,	550
CLASS XII.—ENTOZOA,	551
Order I.—Elminthogama,	551
II.—Elminthaprocta,	553
CLASS XIII.—ACALEPHA,	555
CLASS XIV.—POLYPI,	556
Order I.—Polypi Natantes,	556
II. ——— Tubiferi,	557
III. ——— Vaginati,	568
IV. ——— Denudati,	570
V. ——— Ciliati,	570
CLASS XV.—INFUSORIA,	571
Order I.—Infusoria Appendiculata,	571
II. ——— Nuda,	571

PREFACE.

It has long appeared to me, that an Introduction to the Animal Kingdom, in a convenient form, was a desideratum in the English language. So far back as 1817, I announced my intention of laying such a work before the public, which circumstances have prevented till the present time. The following pages contain the substance of that work, now altered and amended to suit the present extended and improved Zoological systems.

The Quadrupeds are very nearly a translation of Cuvier's arrangement, in the last edition of his *Règne Animal*.

In the Birds I have principally followed Temminck; but have introduced a few genera of Vieillot's, and others, which possess characters sufficiently marked, to entitle them to that rank.

The Reptiles are agreeable to the arrangement of Brongniart, which Cuvier has followed in his Animal Kingdom.

The Fishes are after the method of Cuvier.

In the Invertebral Animals, Lamarek is principally followed, only I have pursued the descending scale, from man down to the lowest degree of animal existence. In the Mollusca and Conchifera, I have found it necessary to introduce various new genera, several of which are those of my friend Dr Leach, and others my own.

The Insects are an abridgment of the system of the celebrated Latreille. In this department I have been constrained, from its extent, to limit myself to the orders and families, with

an example of a strongly characteristic genus and species of each. I have, however, termed his families tribes, as I consider the term as applied by him, inconsistent. The Crustaceous Animals are also principally arranged agreeably to the same author. In the lower animals, Cuvier is chiefly followed.

I have ventured in some instances to add to the Generic Characters of the above learned men, when I observed particulars of importance which they had omitted.

In point of illustration, it is presumed, that so far as regards examples of genera, this work is more complete than any book on Zoology, which has yet been printed. In the Mammalia, an illustration of nearly the whole genera is given, and the Birds and Shells are both complete. In the Insects a characteristic figure of every tribe has been selected,—as is also the case in the other departments: and although the figures are on a small scale, they are executed with a fidelity by Mr Scott, which is highly creditable to him; they amount in all to nearly *eleven hundred and fifty*.

The publishers have spared no expense in obtaining figures of all the new and rare genera, so that the three principal departments might be rendered as complete as possible, and the plates of themselves amounting to one hundred and seven, will form an elegant and interesting volume.

Owing to the plates having been engraved to illustrate my edition of Goldsmith's *Animated Nature*, and *The Zoologist's Text Book*, they have a double numbering, indicative of the order of their arrangement in these Works respectively. The numbering preceded by a G indicates the order of their arrangement in Goldsmith, and the numbering preceded by a T the order of their arrangement in *The Zoologist's Text Book*.

THE
ZOOLOGIST'S TEXT-BOOK.

INTRODUCTORY.

OF THE ANIMAL KINGDOM IN GENERAL.

SYSTEMS are conventional arrangements, to enable naturalists the more easily to classify species, so that their identity may be traced, and compared, and investigated. As new species were discovered, the task of ascertaining them became so difficult and uncertain, that the necessity of Systems was the more apparent. Accordingly, systematic arrangement was practised to a limited extent before the time of Linnæus, but to him we are indebted for the production of a new and comprehensive classification. He reduced all natural objects into three great divisions: these he called Kingdoms; viz. the Animal, Vegetable, and Mineral Kingdoms. These kingdoms he divided into Classes, Orders, Genera, Species, and Varieties.

A plurality of species constitute a genus, a variety of genera an order, and several orders a class. When, therefore, an object presents itself, with which we are totally unacquainted, our first business is to consider what is the class to which it belongs: having ascertained this, we next compare it with the characters of the orders; and having determined to which it is allied, we proceed to investigate its generic characters: when we have satisfied ourselves as to this, we come to the last and most difficult point, namely, the discovery of its species; which often rests on very trivial distinctions.

The *Systema Naturæ* of Linnæus, laid the foundation on which almost all succeeding systems have been built. He arranged the ANIMAL KINGDOM into six classes, as follow :—

CLASS I.—MAMMALIA. CLASS IV.—PISCES.

ORDER 1. Primates

2. Bruta

3. Feræ

4. Glires

5. Pecora

6. Belluæ

7. Cete

ORDER 1. Apodes

2. Jugulares

3. Thoracci

4. Abdominales.

CLASS V.—INSECTA.

ORDER 1. Coleoptera

2. Hemiptera

3. Lepidoptera

4. Neuroptera

5. Hymenoptera

6. Diptera

7. Aptera

CLASS II.—AVES

ORDER 1. Accipitres

2. Picæ

3. Anseres

4. Grallæ

5. Gallinæ

6. Passeres

CLASS VI.—VERMES.

ORDER 1. Intestina

2. Mollusca

3. Testacea

4. Lithophyta

5. Zoophyta

CLASS III.—AMPHIBIA.

ORDER 1. Reptilia

2. Serpentes

3. Nantes

To this system may be attributed, in a great measure, the rapid progress which Natural History has made since it was promulgated. The first outline appeared in 1748, and was perfected in the 12th Edition of his *Systema Naturæ*, published in 1766. This system was improved by Blumenbach, in his “Manual of Comparative Anatomy,” published in 1803.

The modern discoveries, however, by Cuvier, Geoffroy, Lamarck, and other French comparative anatomists, have pointed out the necessity of substituting other arrangements. Among the various systems which have been devised, that of Cuvier seems to approach nearest to the natural affinities; especially in his class *Mammalia*, which is that we have adopted, with the addition of some new genera, possessing decided characters.

Cuvier separates all known animals into *four* great divisions :

namely, I. VERTEBRATED animals; II. MOLLUSCOUS animals; III. ARTICULATED animals; and, IV. RADIATED animals. The foundation of these divisions rests on the organization of the various animals, as they exist in nature.

All animals are characterised by sensation and motion. The brain and nervous system are the medium by which the functions of animal life is manifested: while the heart and its accessory organs, nutrition and generation, &c. are the vital and vegetative functions, and are common to animals and plants. Sensation, therefore, exists in the nervous system. As we descend in the scale of being, these agents gradually become less perfect, until they at last disappear. In the lowest state of animal existence, the nervous system is invisible, if it exists at all; and the muscular fibre has given way to a shapeless mass of animal matter.

OF VERTEBRATED ANIMALS.

FROM man, who stands at the head of vertebrate animals, in consequence of his perfect organization, down to the lowest of the fish, the brain is encased in a cranium, and the spinal cord is inclosed in a bony articulated column, called the spine. To the sides of the spine the ribs are attached, and the bones of the upper and lower extremities: these are either articulated, or kept together by ligaments. Over these, again, are placed the muscles, which give action to the bones. The alimentary system is inclosed within the cavity of the ribs and abdomen.

All vertebrated animals have a muscular heart, red blood; the mouth is constructed with two horizontal jaws; and organs are situated in the head by which they enjoy, through the medium of the nerves, the various senses, namely, of vision, hearing, smell, and taste. There is no instance of their having more than four limbs.

Comparative anatomy enables us to trace a similarity to all the parts of man, through the whole vertebrated animals.

The organs of sense, in all animals with a spine, consist in two eyes, two ears, two nostrils, the tongue, and all the muscles which cover the skeleton. The nervous system takes its rise in two masses situated in the cavity of the skull; the substance is called medullary, or marrow; and anatomists have remarked,

that its volume is proportioned to the intellectual energy. The true nature of the medullary substance has not yet been ascertained by anatomists. When minutely examined, it appears a soft matter, of a cream-coloured white; and seems to consist of infinitely small globules. It appears itself to be devoid of motion; but from it are transmitted to the mind, the impressions of the senses; and from it are conveyed the impulses of the will to the different muscles of the body.

The brain appears to be principally composed of the medullary substance: the spinal marrow is the great stem leading from it, which conducts the numerous ramifications of the nerves through every part of the body. The muscular fibre consists of many series of filaments, whose distinctive property consists in contraction, arising, either from the contact of an external body, or the agency of the will carried along the nerves.

The whole elements of the body are derived from the nutritive or vegetative system. Substances taken into the stomach are converted into fluids, of which the blood is the principal, and contains the general elements of the animal system. It is composed of carbon, hydrogen, oxygen, and azote; in combination with fibrin, gelatine; and the compound substance called albumen, forming a constituent part of the animal solids and fluids; phosphorus and lime, from which the bones are principally formed; iron, and oily or fatty matter.

Hence, the nutritive fluid sustains, and supplies the expenditure of all the solid parts of the body, which are subject to perpetual change, from respiration, perspiration, &c.

The intestinal canal extends from the mouth, to the opening of the rectum; and in its length, consists of various degrees of expansion, which anatomists have designated by different names. The food, in its passage through this alimentary canal, is converted into chyle, the fluid of nutrition, and is absorbed by vessels called the lacteals, and conducted into the veins, by a separate set of vessels; which form what is termed the lymphatic system.

The blood, after having served the purposes of nutrition, is returned to the heart by the veins. This blood, for the purpose of restoring its arterial character, must pass, either wholly or in part, through the lungs, or organ of respiration, before it is con-

veyed by the arteries to the different parts of the body. In the three first classes of animals with vertebræ, the lungs consist of a number of small cells, through which the external air passes on inhalation.

The quantity of respiration depends on two causes: first, the relative portion of blood contained at every instant of time, in the respiratory organ; and, secondly, the quantity of oxygen which enters into combination with the surrounding fluid.

In mammiferous animals the circulation is double, and is performed by means of their capacious lungs alone. The volume of their respiration is consequently greater than in reptiles, whose respiratory organs are less; and also greater than in fishes, from their breathing through a more dense medium.

Birds respire in greater volume than quadrupeds, in consequence of their double circulation and ærial respiration, with the addition of cavities, which penetrate through almost every part of their bodies; acting with the same effective force upon the branches of the aorta, as upon the pulmonary artery.

Hence, in quadrupeds which are designed for walking and running, the respiration is moderate. Birds which are lightly formed, and which require strength of muscle to support them in the air, have a greater degree of respiration. Reptiles, which are destined to crawl along the earth, have a more restricted respiration; and fishes, which move through a fluid so much specifically heavier than themselves, breathe by means of gills.

OF THE MAMMALIA.

MAMMIFEROUS animals are placed at the head of every system, in consequence of the highest degree of organization being allotted to them. The comparative perfection of their organs—the number of their faculties—the delicacy of their sensations—and their varied powers of motion, all combining to produce a superior intelligence, which entitles them to a higher rank in the scale of being.

The young are produced alive, and nourished after birth by milk, which is secreted within the mammæ, or breasts. It is from the teats that the class takes its name.

The Mammalia, having but a moderate respiration, are

generally only fitted for progressive motion on the earth ; which they can sustain with long endurance. A few species can, however, mount into the air, by means of extensible membranes, attached to their limbs, which are usually much elongated ; as in the bat tribe, &c. : while the cetaceous animals, and some others, are formed to move in the water only, from the shortness of their limbs.

Most of the generic and specific distinctions in the mammalia are founded on the teeth, together with the size and shape, &c. of the bones of the animal skeleton. It must, therefore, be apparent, that to understand these, a knowledge of the various principal bones of which the skeleton is composed becomes absolutely necessary. Man being the most perfect of vertebrate animals, his skeleton contains all the parts which exist in other animals, which have vertebræ. It is the province of the comparative anatomist and zoologist to examine and compare these, as they exist in the various species, and upon his anatomical skill will depend the success of his investigations. We, therefore, give a view of the

HUMAN SKELETON.—PLATE I.

BONES OF THE TRUNK.

- A. The sternum.
- B. The seventh, or last true rib.
- C. The cartilage of the ribs.
- D. The twelfth, or false rib.
- E. The lumbar vertebræ, with their intervertebral cartilages, and transverse processes.
- F. The os sacrum.
- G. The os innominatum, composed of
 - The os ilium, *a*.
 - The os pubis, *b*.
 - The os ischium, *c*.

BONES OF THE SUPERIOR EXTREMITY.

- II. The clavicle.
- I. Inner surface of the scapula.

1. The acromion of the scapula.
2. The coracoid process of the bone.
- K. The os humeri.
3. The head, or ball of the os humeri.
4. Internal tubercle of the os humeri; and, farther out, the groove for lodging the tendon of the long head of the biceps muscle.
5. The inner, and
6. The outer condyle of the os humeri. Between 5 and 6, the hollow for lodging the coronoid process of the ulna in the flexion of the fore arm.
- L. The radius.
7. The head of the radius.
- M. The ulna.
8. The coronoid process of the ulna.
- N. Bones of the carpus.
- O. The metacarpal bone of the thumb.
- P. The metacarpal bones of the fingers.
- Q. The two bones of the thumb.
- R. The three phalanges of the fingers, and the os coccygis, joined by its shoulder to the os sacrum.

BONES OF THE INFERIOR EXTREMITY.

- S. The os femoris.
9. The ball or head of this bone, lodged in the acetabulum.
10. The cervix of the bone.
11. The large trochanter.
12. The small trochanter.
13. The inner condyle.
- T. The patella, placed upon the trochlea of the os femoris.
- U. The tibia.
14. The head of the tibia, between which and the condyles of the os femoris, the semi-lunar cartilages appear.
15. The tubercle of the tibia.
16. The malleolus internus.
- V. The fibula, the upper end of which is connected with the tibia.
17. The malleolus externus.

- W. The bones of the tarsus.
- 18. The projection of the os calcis.
- X. The metatarsal bones.
- Y. The phalanges of the toes.
- 19-19-19-19. The pelvis.

BONES OF THE HEAD AND NECK.

- 20. Os frontis.
- 21. The parietal bone.
- 22. The temporal process of the sphenoid bone.
- 23. The squamous part of the temporal bone.
- 24. The mastoid process of the temporal bone.
- 25. The superior maxillary bone.
- 26. The nasal bone.
- 27. The malar, or cheek bone.
- 28. The lower jaw.

Fig. 2.—JAWS OF THE MANDRILL.

- 1. Incisary teeth.
- 2. Canine teeth.
- 3. Molars or grinders.

The upper jaw of the whole class is fixed to the cranium ; the lower jaw consists of two pieces, and is articulated by a projecting condyle into an immoveable temporal bone. The neck is composed of seven, and in one species, of nine, vertebrae. The anterior ribs are attached to a sternum, formed of various pieces placed vertically. Their anterior extremity commences from a shoulder-blade or scapula, which is not articulated to any other bone, but merely suspended in the flesh, and often indeed resting solely on the sternum by an intermediate bone, denominated the clavicle. This extremity is continued by an arm, a fore-arm, and a hand, which is itself formed of two ranges of small bones called the carpus, and another called the metacarpus, and the fingers, each composed of two or three bones termed phalanges.

The whole of this class, with the exception of the Cetacea, have the posterior extremity fixed to the spine, where it shelves

out into a girdle, or pelvis. In youth, this process is divided into three pairs of bones: the *ilium*, which is attached to the spine; the *pubis*, which forms the anterior of the pelvis; and the *ischium*, which forms the posterior part. At the point of union of these bones, there is a cavity into which the thigh is articulated, to which is attached the leg, composed of two bones, the *tibia* and *fibula*. The leg is terminated by the foot, composed of parts analogous to those of the hand, and are termed the tarsus, metatarsus, and toes.

The head of the Mammalia is always articulated by two condyles upon the atlas, or first vertebra.

The cranium is divided into three compartments. The anterior is formed of the two frontal bones and the ethmoid; the intermediate, by the parietal bones and the sphenoid; and the posterior by the occipital. Between the occipital bones and the sphenoid, are inserted the temporal bones, a part of which properly belong to the face.

In the fœtus the occipital bone is divided into four parts; the body of the sphenoid into two, and three of its pairs of alæ are separate. The temporal bone is divided into three, one of which serves to complete the cranium, another to close the labyrinth of the ear, and the third to form the sides of its cavity. These parts of the bones of the cranium unite more or less quickly in the different species, and end by perfect union in the adult.

The face is formed by two maxillary bones, between which the nasal canal passes; they have the two intermaxillary bones in front, and the two palatines behind; between these descends the single lamina of the ethmoid bone, called the *Vomer*. At the entrance of the nasal canal, are the bones proper to the nose. The jugal, or cheek bone of each side, unites the maxillary bone to the temporal, and often to the frontal bones; and finally, the lachrymal occupies the internal angle of the orbit, and sometimes a part of the cheek.

The brain consists of two hemispheres, united by a medullary lamina, called the *corpus callosum*, contains two ventricles, and inclosing four pair of *tubercula*, or eminences; these are called the *corpora striata*, or striated bodies, *thalami optici*, or optic beds, *notes*, and *testes*. Between the *thalami optici* is a third ventricle, which communicates with a fourth, situated be-

neath the cerebellum. The *crura* of the cerebellum always form under the *medulla oblongata*, a transverse prominence, termed the *tuber annulare*.

The *eye*, lodged invariably in its orbit, and protected by two eyelids, and a vestige of a third, has its crystalline humour fixed by the ciliary process. Its sclerotic coat is simply cellular.

In the ear there is always found a cavity, called the *tympanum* or drum, closed from without by a membrane called the *membrana tympani*; it has also four small bones, called the *incus*, *malleus*, *stapes*, and *os orbiculare*, at the entrance of which is placed the stapes, which communicates with three semicircular canals; finally, a spiral canal, called the *cochlea*, which terminates by one of its canals in the tympanal cavity, and by the other, in the vestibule.

The tongue is always fleshy, and is attached to a bone called the hyoid, suspended by ligaments to the cranium.

The lungs are two in number, composed of an infinity of small cells, and are always inclosed, without adhesion, in a cavity formed by the ribs and the diaphragm, and lined by the pleura.

The organ of voice is always at the superior extremity of the *trachea*; and a fleshy continuation denominated the *velum palati*, or soft palate, establishes a direct communication between the larynx and the back part of the nostrils.

Living on the earth's surface, these animals are exposed to the transitions of heat and cold. Their bodies have a covering of hair, which is thicker in the northern regions, and more scanty as they approach the warm latitudes. The *Cetacea*, however, which inhabit the sea, are totally devoid of this covering.

The internal canal in the Mammalia, is suspended by a fold in the peritoneum, called the mesentary, which contains a number of conglobulated glands for the lacteal vessels. Another production of the peritoneum, termed the epiploon, hangs on the front of, and underneath the intestines.

Cuvier divides the Mammalia into orders, whose essential characters are founded on the construction of the feet or organs of touch, and the number and kinds of teeth. On the perfection of the organs of touch, the power of expertness depends; and from the dentition may be ascertained, in a great measure, the nature of their food and digestive functions.

The organ of touch is more perfect in animals whose fingers are more numerously developed, and which are least covered at their tips;—such as those possessing only a single nail protecting their upper extremities, as in man; sensation in the toes of such as are covered with hoofs, on the contrary, is extremely blunted.

In the dentition given, and the generic characters, the method of Cuvier is followed. The arrangement of the figures is intended to represent the upper and under jaw. For example, in man, the incisory, or cutting teeth, are in the centre of each jaw, and are marked $\frac{4}{4}$, (Plate I. fig. 2—1,) that is, four above and four below; the canine, or sharp pointed teeth, are next to these, and are marked $\frac{1}{1}$, (fig. 2—2,) that is, one on each side of the incisory teeth in both jaws; beyond these, and further in the mouth, are the grinders, molars, or cheek teeth, marked $\frac{5}{5}$, (fig. 2—3,) that is, five on each side of the canine teeth in each jaw, making in man a total of thirty-two teeth. The Chimpanzé, an animal which stands next to man, as approaching nearest to him in his organization, has a similar arrangement in the number and kinds of his teeth.

The class Mammalia is divided in the following orders by Cuvier and Latreille:—

I. BIMANA; with two hands, of which man is the only species. He possesses three kinds of teeth.

II. QUADROMANA; or animals with four hands, and having three kinds of teeth.

III. CHEIROPTERA. The general form of these animals is adapted for flight; with a fold of skin between their four limbs, and two pectoral teats, and they have three kinds of teeth.

IV. FERÆ. The four extremities are formed for walking, with three kinds of teeth: the teats vary in number.

V. MARSUPIALIA. These vary in different genera. The young are produced prematurely, and brought to perfection in an abdominal pouch which incloses the teats.

VI. RODENTIA. These have two large incisory teeth in each jaw, separated from the grinders by a vacant space; they have no canine teeth: the grinders have flat crowns, or, if tuberculated, they are blunt; the hind limbs are longer than the fore ones, and furnished with nailed toes, and varying in different species: the teats are also variable.

VII. EDENTATA. The animals of this order have no incisory teeth in either jaw ; some species have canine teeth and grinders, and others grinders only. Some genera are destitute of teeth : they have feet, with toes variable in number, which are armed with strong nails.

VIII. PACHYDERMATA. These have either three, or two kinds of teeth ; the toes are variable in number, and furnished with strong nails or hoofs : the organs of digestion are formed for ruminating.

IX. RUMINANTIA. The genera of this order have no incisory teeth in the upper jaw, and are usually furnished with eight in the lower one : there is a vacant space between the incisory teeth and the grinders. Some genera have one or two canine teeth : the grinders are twelve in each jaw ; they have two toes protected by hoofs ; they have four stomachs ; the males have always horns, as also the females in some species.

X. CETACEA. The bodies of the animals composing this order, are shaped like those of fishes, terminated by an appendage nearly allied to the fin tail, which is cartilaginous and horizontal ; the head is joined to the body by a very short, thick neck ; they have two teats, which are either pectoral or abdominal.

CLASS FIRST.

M A M M A L I A,

OR ANIMALS WHICH SUCKLE THEIR YOUNG.

ORDER I.—BIMANA.

THE animals of this order have three kinds of teeth: on the anterior extremities are hands: and the posterior extremities are furnished with feet adapted for walking: the nails are flat; they have two pectoral mammæ or breasts; the orbital and temporal fossæ are distinct: the stomach is simple: and the body erect.

Genus I.—HOMO.—Linnaeus.

Generic Character.—The incisory teeth are $\frac{4}{1}$, the canine teeth $\frac{1}{1}$, grinders or molars $\frac{6-5}{3-3}$, total 32. The facial angle varies in different nations.

HOMO SAPIENS.—MAN.

Man, who stands at the head of created beings, consists but of one species. When he enters the world, he is a defenceless and helpless creature: he remains in a state of infancy longer than any other animal, and attains maturity from the years of twelve to twenty according to the latitude. Speech and reason, which place him above all other creatures, are but germs, which do not ripen of themselves, but are evolved by the aid of culture and education. His instinct seems inferior to that of most other animals: for, they possess internal impulses, peculiar to their kinds, by which they can provide for themselves, and form habitations for their young: while man is entirely destitute of these instincts. The Almighty has, however, given him in their stead, reason and reflection. He has, besides, a voice, by which he can give utterance to infinite modifications of articulate sounds, and thereby has constructed language, which enables him to communicate his ideas to his fellows. These qualities are possessed by every known race of men. He differs

from all other creatures in his upright gait, and in the admirable construction of his hands ; which enable him to perform actions and form instruments with such nicety. These, in connection with his intellectual faculties, have qualified him to make discoveries beyond this earth.

The specific distinction betwixt man and all other animals, consists in his upright posture, and the bones of his legs and arms being so constructed, that it is impossible for him to walk on his four extremities ; the great length of the thigh bone would bring the knee in contact with the ground, and the short inflexible structure of his feet disqualify him for this sort of action : the arms being so far separated from the central line and the articulations of the shoulder joints, together with their distance from each other, show that he could not support himself in a horizontal position ; the muscle which acts as a binder betwixt the shoulders, is small in man compared to that of other animals : his head is heavier, and the vertebræ and muscles of the neck weaker, so that he could not support it in this position : in the quadrumina, the arteries which supply the brain are subdivided, while in man they are entire, and would in the horizontal position consequently flow with such force and rapidity, as soon to produce stupor. Man is the only true biped, his feet being exclusively formed for walking, and his hands for higher and more varied purposes : in one particular they differ widely from those of all other animals, namely, in the structure of the thumb, which being entirely independent from the fingers in its action, gives it a facility and power in grasping, greatly superior to the chimpansé, which approaches nearest to man in conformation.

But what raises man far above every other creature, is his brain. Several of the inferior animals, as the elephant and whale, have brains larger in absolute size than man ; several species of monkeys, and in the sparrow, canary, linnet, and red-breast, the brain is larger in proportion to the size of the body than in him. But man is distinguished from the inferior creatures by the possession of several cerebral parts, which are wanting in them. For example, in man there are certain convolutions lying transversely in the upper region of the brain, under part of the parietal bones ; and also a variety of convolutions in the anterior lobe, which do not present themselves in the brains of the inferior animals. In the human species, these

parts are connected with certain moral feelings and intellectual faculties, which are denied to the brutes ; such as the sentiment of justice, veneration, the love of perfection ; the faculties of inventing and using artificial language, of wit, of tracing the relation of cause and effect, of calculation, and others. Man is distinguished from the lower animals also by difference of proportion between certain parts of the brain common to both : in man, for example, the anterior lobe connected with intellect, is greatly larger in proportion to the posterior lobe, connected with the lower propensities, than in brutes : these faculties confer on man his proper human character—they constitute him a rational, moral, and religious being.

Man, under all his varied modifications, is but of one species. Cuvier has reduced these changes to three distinct varieties, which, he considers, preserve uniformity of character, namely, the white, or CAUCASIAN ; the yellow, or MONGOLIAN ; and the NEGRO, or ETHIOPIAN. These, however, we consider too limited, and agree with Blumenbach, that they may be divided into five races or varieties : viz. the CAUCASIAN, MONGOLIAN, ETHIOPIAN, AMERICAN, and MALAYAN.

General Remarks.—In addition to the distinctions of Blumenbach, we shall give the phrenological characters, that a clearer notion may be got of the varied modifications of the skull in man. These we have taken, together with the drawings of the different crania in plate III. from the valuable collection of the Phrenological Society. They were drawn through a lotted scale, from ordinary specimens, and exhibit on the plate their relative proportions.

According to Phrenologists, the organs which manifest the propensities common to man with the lower animals, lie in the base, on the sides, and at the back portions of the brain ; those which manifest the moral sentiments, occupy the coronal or upper horizontal region ; and those which manifest the intellectual faculties, constitute the anterior lobe. The temperament means the *quality* of the brain. The skull indicates this by its texture. A low temperament is indicated by a coarse open grain in the core, and a high temperament by a fine close texture.

VARIETY I.—THE CAUCASIAN.

Plate II. fig. 1, and plate III. fig. 1.

The face is oval; the facial angle 85 degrees; the forehead high and expanding: cheeks coloured with red; the hair is long, generally brown, but also varying from white to black.

The proportions of the different regions are favourable. The base and sides are fully developed, but the coronal region is broad and full, and the anterior lobe is well developed. This combination gives aptitude for acquiring refinement and intelligence; it presents the finest forms to the painter and sculptor. The Saxon head, which predominates in civilized Europe, is a variety of it. The temperament is favourable, the size is moderately large.

Ancient Greek Skull.—Plate III. fig. 3.—This skull is large, and the temperament favourable. It is a specimen of the Caucasian variety. The base, sides, and back parts of the brain are large, but the coronal region and anterior lobe are likewise greatly developed. The combination indicates vigorous animal, moral, and intellectual faculties. A distinguishing characteristic is, large constructiveness, ideality, and imitation,—giving talent for works of art.

New Zealander.—Plate III. fig. 6.—This is a large coarse skull, with immense base, sides, and posterior parts. The coronal region is flat, particularly in the consecutions. It is rather narrow in the anterior region, but broader towards the back. The anterior lobe is small. The skull indicates a coarse, cautious, cunning, cruel, and energetic character; with different moral and intellectual powers: it belongs, however, in its form to the Caucasian variety.

New Hollander.—Plate II. fig. 6, and plate III. fig. 7.—This skull is rather large; the temperament is extremely coarse, and the bones are unusually thick. The base, sides, and posterior portions of the brain are very large, the coronal region is rather narrow, sloping like a roof, and the anterior lobe is very small. The skull indicates coarseness, great ascendancy of animal propensity, deficient moral power, and extremely low intellectual ability.

VARIETY II.—THE MONGOLIAN.

Plate II. fig. 2, and plate III. fig. 2.

The face is broad, flat, and copper-coloured ; with lateral projections of the cheek bones : facial angle 75 degrees : eyes narrow and oblique ; hair straight and hard, lips thick, nose flat, and beard thin. This race inhabits Asia, Finland, European Lapland, including the Esquimaux of North America.

The skull from which we figured the example, plate 3, fig. 2, was a Chinese specimen. The skull is large, but the temperament is low. The base of the brain is fully developed, but the organs of combativeness are deficient. The coronal region is fairly developed, but the anterior lobe is remarkably shallow. The character indicated, is one fond of animal gratification, but not brave ; alive to moral emotions, but feeble in intellect.

VARIETY III.—THE ETHIOPIAN.

Plate II. fig. 3, and plate III. fig. 9.

The skin is in a greater or lesser degree black ; hair woolly and black ; jaw much produced or projecting forward ; lips very thick, nose flat and broad : facial angle 70 degrees. Inhabits the middle parts of Africa.

This figure is drawn from a cast. The size is of a fair average. The characteristics of the development are, great length and moderate breadth. The organ of the love of children is very largely developed. The animal organs are large ; but without presenting the predominating appearance of the Charib and New Hollander. The coronal region is pretty fairly developed ; and the anterior lobe is considerable. The character is one of preponderating animal feeling, but with considerable moral and intellectual susceptibility.

VARIETY IV.—THE AMERICAN.

Plate II. fig. 4, plate III. fig. 4.

Skin mostly tan, or reddish copper-coloured ; cheek-bones prominent ; forehead short ; nose flattish ; hair straight and coarse ; beard thin ; facial angle 73 degrees. This variety comprises the whole Americans except the Esquimaux.

This specimen is drawn from a cast which does not indicate the temperament: the skull differs widely in form from the Caucasian variety. It is rather small, short, round and high. The organs of the animal propensities occupy an immense portion of the brains. The leading organs in the department of the feelings, are secretiveness, cautiousness, love of approbation, and firmness. The coronal region is very moderately developed; and the anterior lobe is shallow and small. The character indicated is one of cunning, vanity, and powers of endurance; with small aptitude for refinement and acquiring intelligence.

The Charib.—This figure is also drawn from a cast, and the temperament cannot be determined. It is large, but presents the most preponderating of the lower lateral and posterior portions of the brain of any variety of skull known to exist. The anterior lobe is exceedingly defective, and the coronal region is very flat. The forehead appears to be depressed artificially. The character indicated is one of energy, but of pure animal ferocity and cunning; with feeble intellect, and very limited moral susceptibility.

VARIETY V.—THE MALAYAN.

Plate II. fig. 5, and plate III. fig. 5.

Colour of the skin brown, from mahogany to chestnut and clove brown,—the hair thick, black, and bushy,—nose broad, and mouth wide: facial angle 73 degrees. This character includes the whole of the islands in the Indian ocean. Blumenbach also includes in it the South Sea Islanders; but the conformation of their crania seems more nearly related to the Caucasians.

The Javanese.—Plate III. fig. 5.—The example we have given of this variety is the skull of Java, from the interior of the island. This skull is of a full size—the temperament is coarse—the base, sides, and posterior portions of the brain are large—the coronal region is moderately, and the anterior lobe considerably developed. The character indicated is one of considerable power; but more liable to the predominance of animal feeling, than susceptible of moral cultivation. The intellect, however, is considerable, which will aid the moral powers.

All the varieties of the human race may be traced to one or

other of these varieties. Food, climate, and other causes, may greatly alter the general character, but the hereditary peculiarities may nevertheless be traced.

Man is found to be the native of all climes, while other animals are generally circumscribed in their geographical range. He can endure the burning heats of the torrid zone, and Zembla's snows; but it is found that in either extreme he is subject to diminution of stature: and attains the greatest size, and most perfect form, under a temperate latitude.

Man is truly an omnivorous animal, as he lives upon all kinds of food.

ORDER II.—QUADRUMANA.

THE Quadrumana have three kinds of teeth, namely, incisors, canines, and molars: the four extremities are terminated by hands, with the thumb detached, having a muscular action by which it is capable of being more or less opposed to the fingers, which are long and flexible, so that they can grasp branches of trees with facility: they have two or four pectoral mammæ; the clavicles are complete; the bones of the legs and arms are separate, capable of pronation and supination; the stomach is simple and membranaceous; the intestines are short, with a small cæcum; the orbital and temporal fossæ are distinct.

The animals of this order eat fruit, roots, and insects: they live upon trees—are intelligent, imitative, and active. Their geographical range extends to the warm parts of America, Africa, and India.

FAMILY I.—SIMIÆ.

The form of this family approaches that of man. The nostrils are contiguous, separated only by a thin septum; nose somewhat arched in some species, and much flattened in others; with two pectoral teats; with or without a tail.

They are gravid from five to seven months, and bring forth from one to two at a birth.

TRIBE I.

NATIVES OF THE OLD CONTINENT.

(Simiæ Catarrhini, Geoffroy.)

The animals of this tribe have five grinders, crowned with blunt tubercles in each jaw—nostrils divided only by a thin septum—tails, either wanting or short; some few long, but not prehensile. They inhabit Africa, India, and its islands.

Sub-Genus 1.—ORANGS Proper.—Without callosities on the hinder parts.

Genus 1.—TROGLODYTES.—*Geoffroy.*

Generic Character.—Facial angle 50 degrees; no cheek pouches, tail, nor callosity on the hinder parts; arms short; superciliary ridges distinct. The canine teeth are somewhat projecting, and are close to the incisory and grinding teeth, like those of the human species;—the head is rounded, and the muzzle slightly projecting.

Troglodytes niger.—THE CHIMPANSE.

Plate IV. fig. 1.

This animal makes the nearest approach to man of all other quadrupeds, both in face, form, and internal organization. The fur is black, the arms are of a moderate length, the mouth and ears are large. He differs from the Orang-Outang, in wanting the intermaxillary bone, and in the last joint of his great toe being perfect. He has the round ligament of the thigh-bone, which fits him more than the Orang-Outang for assuming the upright posture. The body is covered with long, coarse, and thinly scattered hairs; the face is naked, brown, the cheeks only having hairs: the abdomen is nearly smooth. Inhabits Africa, at Angola and Congo. No perfect specimen of this Ape has yet reached Europe.

Genus 2.—*PITHECUS.*—*Cuvier.*

Generic Character.—The incisory teeth are $\frac{1}{4}$, canines, $\frac{1}{1}-\frac{1}{1}$, molars, $\frac{5}{5}-\frac{5}{5}$; total 32. The canine teeth are somewhat larger than the others; the molars more equal than in man, with the tubercles more produced: the head is orbicular, without a superciliary ridge. While young, the facial angle is 50 degrees, and when adult, 60 degrees. No cheek pouches—ears are rounded, as in the human species—arms much longer than in man—thumbs rather short—tailless—some of the species with callosities on the hinder parts.

Pithecus satyrus.—*THE ORANG-OUTANG.*

Plate V. fig. 1

The Orang is next in order to the Chimpanzé in his resemblance to man, and is endowed with considerable intelligence. His stature is gigantic, measuring from seven and a half to eight feet. The face is bare, of a dark lead colour, with a beard of straggling short downy hair, of a chestnut colour,—eyes small, close, being only an inch apart,—eyelids with long eye-lashes,—ears like those of man, wanting the lower lobe,—nose much depressed, scarcely raised above the level of the face,—nostrils three-fourths of an inch in breadth, placed obliquely side by side,—muzzle projecting considerably,—mouth large and wide,—lips, when closed, narrow,—the hair of the head reddish brown, five inches long. The palms of the hands are long, and quite naked from the wrists,—same colour as the face. All the fingers have nails, which are strong, convex, and of a black colour: the thumb reaches to the first joint of the fore-finger.

The skin of the body lead-colour,—hair long, of a brownish chestnut. Inhabits Asia, near Malacca and Borneo.

Sub-Genus 2.—*GIBBONS.*—With callosities on the hinder parts.

Pithecus lar.—*THE GIBBON.*

Plate V. fig. 2.

The face is flat, tawny, and is surrounded with gray hairs,—the

eyes are large, and deep sunk,—the ears are round and naked,—the fur is black, and the arms very long, nearly reaching the ground when the animal is standing. It has no tail.

Inhabits Sumatra, Moluccas, and the coast of Coromandel.

This is the genus *Hylobates* of Illiger, differing only from the preceding in the great length of the arms, which we do not think sufficient for a generic distinction. The Genus *Presbytis* of Cuvier is liable to the same objection.

Genus 3.—*COLOBUS*.—*Geoffroy*.

Generic Character.—The incisory teeth are $\frac{4}{4}$, canine teeth $\frac{1-1}{1-1}$, grinders $\frac{5-5}{5-5}$. Facial angle from 40 to 45 degrees,—muzzle short, face naked,—nostrils inclining towards each other, with distinct cheek pouches,—no thumbs on the hands,—feet with five fingers, the thumb much separated from the others, increasing in length from the first to the third,—tail long and slender, with a tuft at its extremity,—with callosities on the hinder parts,—body and legs generally slender.

Colobus polycomos.—FULL BOTTOM MONKEY.

Plate IV. fig. 2.

With a short, black, and naked face; the head small, which, with the shoulders, are covered with long coarse flowing hairs, like a full-bottomed periwig, of a dirty yellowish colour, mixed with black,—body, arms, and limbs, of a glossy black,—the hands are naked, with four fingers only,—on each of the lower limbs are five long fingers,—the tail is long, of a snowy whiteness, with an oblong tuft at its point. About three feet in height.

Inhabits Sierra Leone.

Genus 4.—*SEMNOPITHECUS*.—*F. Cuvier*.

Generic Character.—Incisors $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{5-5}{5-5}$, total 32. The last grinders in the lower jaw have five projections on their crowns, the fifth occupying the middle line of the tooth. Facial angle 45 degrees; the head round; the nose

flat; the ears moderately large, with cheek pouches; tubercles very long; the thumbs on the hands very short, and remote from the fingers; with callosities on the hinder parts.

Semnopithecus entellus.—THE ENTELLUS MONKEY.

Plate IV. fig. 3.

Face, hands, and feet black; the cheeks and chin margined by a beard of grayish white; eye-brows surmounted by a line of long stiff black hairs; general colour of the body ash-gray; under parts dingy yellowish-white. It is upwards of two feet, exclusive of the tail, which measures three feet.

Inhabits the Peninsula of Hindostan.

Genus 5.—CERCOPITHECUS.—Cuvier.

Generic Character.—With 32 teeth; canines somewhat projecting, with intermediate spaces for their reception in each jaw. The head is rounded, and the facial angle from 45 to 50 degrees; ears generally rounded, although they are a little angular in some species; they have cheek pouches, and a tail at least the length of their body.

Sub-Genus 1.—LASIOPYGA.—Illiger.—The hands are longer than the fore-arms; anterior thumbs short and slender; without callosities on the hinder parts, but bordered with long ciliated hairs.

Cercopithecus nœvus.—THE COCHIN-CHINA MONKEY.

Plate III fig. 4.

The face is flat, which, with the ears, are of a yellow bay-colour; a narrow band across the forehead. Sides of the face bounded by long, spreading, yellowish white hairs; neck with a collar of reddish purple-coloured brown; upper parts of the arms and thighs black; legs and knees of a bright chestnut; back, upper parts of the body and sides, yellowish gray; lower parts of the arms and tail white; feet, dusky. Measures two feet from the head to the tail.

Inhabits Madagascar and Cochin China.

Sub-Genus 2.—*NASALIS.*—*Geoffroy.*—Nose produced, and disproportionately long; ears small and round; body gross; anterior hands with four fingers only, and a short thumb; posterior hands broader, with thick nails; tail longer than the body, with callosities on the hinder parts.

Cercopithecus nasicus.—THE PROBOSCIS MONKEY.

Plate IV. fig. 5.

Face somewhat curved, brown, marked with blue and red; head chestnut coloured, large in proportion to the size of the body; ears broad, thin, naked, and hid with hair; body chestnut colour, approaching to orange on the breast; throat and shoulders with long hair, resembling a tippet. Two feet long from the nose to the tail.

Inhabits India, principally at Cochin-China.

Sub-Genus 3.—*CERCOPITHECUS.*—*Linnaeus.*—The head is round, the coronal surface produced; facial angle 50 degrees; superciliary ridges wanting; nose depressed, nostrils open at the top of the nasal furrows; orbitary hollows with smooth edges; no callosities on the hinder parts.

Cercopithecus mona.—THE VARIED MONKEY.

Plate V. fig. 9.

Nose short and thick—face dark lead colour; beard on each side long, greenish yellow. Coronal surface bright yellow, freckled with black; back and sides chestnut brown; legs, feet, and tail, black; inside of the thighs pale blue, with two whitish spots on the hinder parts. Length, eighteen inches.

Inhabits Barbary, Arabia and Persia.

Sub-Genus 4.—*CERCOCEBUS.*—*Geoffroy.*—Muzzle somewhat longer than the preceding; facial angle 45 degrees; margins of the orbits projecting.

Cercopithecus sabæus.—THE GREEN MONKEY.

Plate V. fig. 7.

Fur on the upper part, of a fine greenish olive ; throat, belly, and inside of the limbs, silvery white ; coronal surface pyramidal ; the face deep black ; cheeks with long yellowish-white hairs ; tail yellow, eighteen inches long ; length of the body, fourteen inches.

Inhabits Senegal, the banks of the Niger, and the Cape de Verd Islands.

Genus 6.—MACACUS.—*Lacepede*.

Generic Character.—Teeth, same as in all others of the Ape tribe, thirty-two in number ; canines, very strong ; facial angle 40 degrees ; superciliary and occipital ridges very distinct ; tail very short, or only a small tubercle in its stead ; cheek pouches and callosities distinct ; ears angular ; general aspect of the face like that of a dog.

Sub-Genus 1.—MACACUS, Proper.—The tail more or less long.

Macacus nemistrinus.—THE BROWN BABOON.

Plate IV. fig. 6.

The muzzle large and thick ; face and ears naked, and of a flesh colour ; hair on the head and back deep olive ; paler on the belly : the eyes hazel ; it has cheek pouches, and red callosities on the hinder parts.

Inhabits Sumatra and Japan.

Sub-Genus 2.—MAGOT.—A simple tubercle is substituted for the tail.

Macacus inuus.—THE BARBARY APE.

Plate V. fig. 3.

The fur is grayish-green, lighter on the belly ; a small tubercle in place of a tail ; the nose is prominent. Two feet and a half high.

Inhabits Africa, from Barbary to the Cape of Good Hope, Egypt, and the Rock of Gibraltar in Spain.

Genus 7.—*CYNOCEPHALUS.*—*Cuvier.*

Generic Character.—With thirty-two teeth, as in the rest of the tribe; the canine teeth very large; head elongated; muzzle much produced, like that of a dog; facial angle from 30 to 35 degrees; face considerably wrinkled, and striated longitudinally; the superciliary, sagittal, and occipital ridges, strikingly developed. They have cheek pouches.

Sub-Genus 1.—*BABOONS.*—Tail as long as the body, and sometimes longer.

Cynocephalus papio.—*THE BABOON.*

Plate IV. fig. 4.

Fur grayish-brown; face of a tawny flesh-colour, with a large tuft of hair on each side, extending half way down the muzzle; surmounted by a large bunch at top. From three to four feet high.

Inhabits the hottest parts of Africa.

Cynocephalus hamadryas.—*THE DOG-FACED BABOON.*

Plate V. fig. 5.

The fur is ash-coloured, with two very long tufts of hair on each side of the head, over the ears; mane like a large tippet, hanging over half the body; face, flesh-coloured; hands black.

Inhabits the Persian Gulf, at Moca.

Sub-Genus 2.—*MANDRILLS.*—Tail very short, slender, and perpendicular to the dorsal spine.

Cynocephalus mormon.—*THE RIBBED NOSE BABOON.*

Plate VI. fig. 1.

Head large in proportion to the size of the body; face naked; cheeks of a clear violet blue, with various oblique furrows;

nose bright scarlet; eyes very small; irides hazel; hair of the head long, erect, terminating in a pointed apex; beard long, yellowish; body covered with bristly hairs, each of which is annulated with black and yellow; general appearance of a greenish cast; canine teeth remarkable for their strength. Five feet high.

Inhabits Africa on the Gold Coast.

TRIBE II.—AMERICAN APES.

(Simiæ Platyrrhini, Geoffroy.)

Head round; on each side of both jaws are six blunt tuberculated grinders; no cheek pouches; nostrils opening on the sides of the nose; partition broad; tail long, generally prehensile; hinder parts hairy, without callosities.

Section 1st.—SAPAJOUS.—Tail long and prehensile.

Genus 8.—ATELES.—*Geoffroy.*

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; grinders $\frac{6-6}{6-6}$; facial angle 60 degrees; ears bordered; extremities very long and slender; the anterior ones generally tetradactyle; no thumb, but sometimes replaced by a wart; tail very long, and strongly prehensile; the under part, towards the point, naked. Bring forth but one at a birth.

* With a very small nailed thumb on the anterior hands, or a rudimentary nailless thumb.

Ateles Hypoxanthus.—*Desmarest.*—Face skin-coloured, with gray spots; fur grayish-fawn colour; hinder parts, yellow rust colour; thumb short and strong. Two feet long, tail the same. Inhabits Brazil.

** With no vestige of a thumb on the anterior hands.

Ateles Paniscus.—THE COAITA.

Plate IV. fig. 7.

The face flesh-coloured, and the whole body of a uniform

black ; it has no thumbs on its hands ; but, instead of these, there are very small projections or appendices ; the tail prehensile, naked, and has a second covering of a very delicate and sensitive skin, highly susceptible of touch.

Inhabits South America ; common in the woods of Brazil and Guiana.

Genus 9.—LAGOTHRIX.—Humboldt.

Generic Character.—Incisory teeth $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Facial angle 50 degrees ; head round ; muzzle projecting ; limbs proportioned to the body ; anterior hands furnished with nails, divided with a thumb. Tail strongly prehensile, with the lower part of the extremity naked ; hair of a woolly texture.

Lagothrix Humboldtii.—THE CAPPARO.

Hair long, of a blackish ash-colour ; body twenty-eight inches ; tail nearly thirty inches.

Inhabits the banks of the River Guariara, South America.

Genus 10.—MYCETES.—Illiger.

Generic Character.—Incisory teeth $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Facial angle 30 degrees ; head pyramidal ; visage oblique ; os hyoides extremely ventricose ; outside prominent ; the anterior hands provided with a thumb ; tail very long ; naked at the lower extremity.

Mycetes fusca.—THE GUARIBA ; OR PREACHER MONKEY.

Plate VI. fig. 2.

Fur smooth, glossy, dark chestnut-brown ; paler on the back and head ; with a round beard beneath the chin ; feet and point of the tail brown. Size of a fox. Inhabits the woods of Guiana, in immense societies.

Genus 11.—CEBUS.—Erxleben.

Generic Character.—Incisors $\frac{1}{1}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; to-

tal 36. Facial angle 60 degrees; the head round with a short muzzle; forehead somewhat prominent; the occiput projecting behind; the ears rounded; the os hyoides not prominent; the tail prehensile and hairy all over.

Cebus fatuellus.—THE HORNED SAPAJO.

Plate IV. fig. 8.

Fur of the face reddish-brown, chestnut on the back, paler on the sides, bright red on the belly, extremities and tail brown; with two strong brushes of hair elevated on the base of the forehead; claws longish, and somewhat blunted. About the size of a half-grown cat. Inhabits Guiana.

Section 2d.—SAGOINS.—Tail long, but not prehensile.

Genus 12.—CALLITHRIX.—Cuvier.

Generic Character.—Incisors $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Facial angle 60 degrees; head small and rounded; ears long, mis-shapen; tail somewhat longer than the body, covered with hair, and not prehensile; body slender, in proportion to its size.

Callithrix sciureus.—THE SQUIRREL MONKEY.

Plate IV. fig. 9.

Colour of the fur, bright gold yellow; hands and feet orange; the head round; nose blackish; orbits of the eyes flesh-colour; ears hairy and ill formed; under parts whitish; tail very long, with a black tip. Size of a squirrel. Inhabits Cayenne and Brazil, South America.

Genus 13.—AOTUS.—Humboldt.

Generic Character.—Incisors $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Head large and round; muzzle short; eyes very large and approaching; nostrils separated by a very thin partition; ears small; tail as long as the body, covered with hair, but not prehensile.

Aotus trivirgatus.—THE DOUROUCOULI.

Plate IV. fig. 10.

Hair of the body gray, mixed with white, exhibiting a silvery lustre in the sun, and a brown line passing down the back; forehead with three black divergent lines; face blackish and hairy; mouth surrounded by bristly hairs; palms of the hands white; tail brushy, half as long again as the body; no external ears. Length of the body nine inches and a half. Inhabits the forests of Maypura and Esmeralda, South America.

Genus 14.—PITHECIA.—Desmarest.

Generic Character.—Incisors $\frac{4}{1}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Facial angle 60 degrees; ears rounded; tail a little longer than the body, not prehensile, and covered with long hair; feet with five toes; nails short and sharp.

Pithecia rufiventer.—THE FOX-TAILED MONKEY.

Plate VI. fig. 3.

Fur dusky brown, with a slight rusty tinge, except on the head and face; from the top of the nose to the chin it is black; face dark brown, surrounded by white downy hair, which rises on each side of the forehead, like a wig, diverging from the centre of the forehead; bushy at the cheeks; eyes large; ears round and flat; tail equal to the length of the body, thick, like that of a fox, but more bushy. Size of a domestic cat. Inhabits French Guiana.

Genus 15.—JACCHUS.—Desmarest.

Generic Character.—Incisive teeth $\frac{1}{1}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 36. Facial angle 50 degrees; head round; muzzle short; occiput prominent; tail longer than the body, soft, and entirely covered with hair; feet with five toes; the thumbs of the anterior hands in the same direction as the fingers, and not opposable; nails very long, compressed, arched, and pointed.

Sub-Genus I.—OUSTITI.—Geoffroy.—Intermediate incisive

teeth of the upper jaw broader than the lateral ones, isolated on each side; lower incisory teeth elongated, narrow, vertical, the lateral ones longest; upper canines conical, of medium length, the two inferior ones very small.

* With the tail annulated.

Jacchus vulgaris.—THE STRIATED MONKEY.

Plate V. fig. 6.

Face naked, of a dull flesh colour; ears large, and shaped like those of man, with a very long tuft of ash-coloured hair before and behind them; body beautifully marked with alternate transverse bars of ash-colour and black; shoulders brownish-ed; tail long, bushy, annulated with ash-colour and black; fingers like the claws of a squirrel, nails sharp. Length, exclusive of tail, twelve inches. Inhabits Brazil.

** Tail without annulations.

Jacchus argentatus.—THE FAIR MONKEY.

Plate V. fig. 8.

Head small and round; face and hands vivid scarlet; body and limbs covered with long snowy-white shining hairs, of silvery brightness; tail longer than the body, deep chestnut. Somewhat larger than the striated monkey.

Sub-Genus 2.—TAMARIN.—*Geoffroy*.

The four upper cutting teeth are contiguous, the intermediate somewhat broader than the lateral ones; four under incisors inclined, contiguous; ears large; forehead produced.

Jacchus Edipus.—RED-TAILED MONKEY.

Plate VI. fig. 4.

Upper parts of the body pale reddish-brown, under parts and limbs white; face black; hair on the head white, long, loose, and spreading over the shoulders; lower parts of the back, and

upper half of the tail deep orange-red ; rest of the tail black ; claws small and sharp. Size of a large squirrel. Inhabits Guiana.

FAMILY II.—LEMURES.

Form approaching to the quadrupeds who walk on all fours ; upper and under cutting teeth varying both in form and situation ; nostrils at the point of the muzzle ; posterior extremities longer than the anterior ; first finger of the hind feet next the thumb, with a sharp nail ; with or without a tail, which is not prehensile when it exists ; from two to four pectoral mammæ.

Genus 16.—INDRIS.—*Lacepede*.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; grinders $\frac{5-5}{5-5}$; total 32 : the superior incisory teeth united in pairs, the external inferior ones broadest ; grinders with a tuberculated crown ; head long, triangular ; the ears short and rounded ; two pectoral mammæ ; posterior members rather long, terminated by a sharp reflected nail ; the toe of the hind feet is larger than the others.

Indris brevicaudatus.—THE SHORT-TAILED INDRIS.

Plate VI. fig. 5.

Face lengthened, like a dog's ; ears short, tufted ; face, abdomen, and rump, white ; all the other parts of the body bluish-black ; fur silky, and thick ; nails flat, but pointed. Three feet and a half, when standing erect. Inhabits Madagascar.

Genus 17.—LEMUR.—*Linnaeus*.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; grinders $\frac{5-5}{5-5}$; total 32 ; upper incisory teeth united in pairs ; lower ones long and inclined ; grinders with a tubercle on their crown ; head long, triangular, with a slender muzzle ; ears short and rounded ; two pectoral mammæ ; fourth toe of the feet longer than the others ; tail longer than the body, not prehensile ; hair soft and woolly.

Lemur macaco.—THE MACACO, OR RUFFED LEMUR.

Plate VI. fig. 10.

Fur entirely black ; head gray ; with black patches round the eyes ; tail long and bushy : hair of the cheeks very long : some individuals are covered with black and white patches. About twenty inches long. Inhabits Madagascar.

Genus 18.—LORIS.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{4}{4}$, canine $\frac{1-1}{1-1}$, grinders $\frac{6-6}{5-5}$, total 36. Upper incisory teeth very small, and separated in the middle ; grinders with sharp pointed crowns ; head round ; muzzle reflected ; nose rather long ; eyes very large ; ears short and hairy : with four pectoral mammæ : tailless. The bones of the legs distinct, and the tibia larger than the femur : the tarsus and metatarsus equal in length.

Loris gracilis.—THE SLENDER LORIS.

Plate VI. fig. 6.

Fur yellowish mouse-colour, with a white spot on the forehead ; body very slender, limbs remarkably thin ; totally destitute of a tail : body about seven inches and a half long. Inhabits Ceylon.

Genus 19.—NYCTICEBUS.—*Geoffroy*.

Generic Character.—Cutting teeth $\frac{2 \text{ or } 1}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{2-2}{1-1}$; total 34 or 36. Intermediate cutting teeth separate ; lateral ones small,—wanting in some species ; crowns of anterior grinders large, hollow in the centre ; tuberculated at the angles : body strong ; head round ; muzzle short, bent upwards ; ears short and hairy ; tail short ; with two pectoral mammæ.

Nycticebus Bengalensis.—SLOW LEMUR.

Plate VI. fig. 9.

Fur pale reddish-brown ; dorsal line brown, with four upper incisory teeth, tail very short, legs very strong ; eyes very large, approximate : about a foot long. Inhabits Bengal.

Genus 20.—GALAGO.—Geoffroy.

Generic Character.—Incisory teeth $\frac{2}{6}$ or $\frac{4}{6}$; the lower ones generally horizontal; canine teeth $\frac{1-1}{1-1}$; grinders $\frac{6-6}{5-5}$; ears very long, membranaceous, and naked; eyes large and approaching; hind legs long; tail very long, not prehensile; with two pectoral mammae.

Galago crassicaudatus.—THE GREAT GALAGO.

Plate VI. fig. 7.

Fur grayish red; ears two-thirds the length of the head; tail greatly tufted; four upper incisory teeth. About the size of a rabbit. Inhabits Senegal.

Genus 21.—TARSIVS.—Cuvier.

Generic Character.—Incisory teeth $\frac{2}{4}$, equal; canine teeth $\frac{1-1}{1-1}$, small; grinders $\frac{6-6}{6-6}$; total 34: muzzle very short; ears large, naked; the hinder legs very long, the tarsus being three times the length of the metatarsus; the tail very long.

Tarsius spectrum.—THE WOOLLY TARSIVS.

Plate VI. fig. 11.

Fur pale rust-colour on the upper parts, white beneath; tail bright chestnut: fur soft, face black, ears small, eyes large; feet with five fingers; nails sharp, except the thumbs, which are blunt. One foot nine inches long. Inhabits Amboyna.

Genus 22.—CHEIROMYS.—Cuvier.

Generic Character.—Incisory teeth $\frac{2}{2}$, strong; no canine teeth, but a vacant space where they should be; grinders $\frac{4-4}{5-5}$; total 18: fore-feet short, with the middle finger very long and thin; hind legs and tail long, the latter tufted; with two inguinal mammae.

Chiromys Madagascarensis.—THE AYE AYE.

Plate VI fig. 9.

Fur pale rusty brown, mixed with black and gray; on the head the rusty brown prevails, blacker on the back and limbs; tail black; sides of the head, neck, lower jaw, and belly grayish: head shaped like that of a squirrel. About eighteen inches long.

Inhabits Madagascar.

ORDER III.—CARNASSIERS.

THE Carnassiers have three kinds of teeth; grinders more or less of a carnivorous character. The articulation of the lower jaw transverse, for the purpose of vertical motion. The orbits are not separated from the temporal fossæ. The thumb of the anterior extremities never opposable to the other toes. Stomach simple, membranaceous: intestines short.

Some of the animals eat vegetable substances, but never grass or leaves.

This order is divided into four families; namely, 1. CHEIROPTERA, 2. INSECTIVORA, 3. CARNIVORA, and MARSUPIATA.

FAMILY I.—CHEIROPTERA.

Fingers connected by a membrane, which spreads from the anterior to the posterior extremities: fitting the animals for flight. Incisory teeth variable in number; canine teeth more or less strong; grinders, in general, having acute-pointed crowns, with a longitudinal furrow; clavicles very strong, scapulæ large; fore-arms not capable of rotatory motion: two pectoral mammæ.

TRIBE I.—GALEOPITHECI.

Fingers furnished with long, much crooked nails; dental formulae anomalous. Skin of the membranes covered with hair on both sides.

Genus 1.—GALEOPITHECUS.—Geoffroy.

Incisive teeth $\frac{4}{6}$; canines $\frac{1-1}{1-1}$; grinders $\frac{9-6}{5-5}$; total 36. Upper intermediate incisors very small; lateral ones long and compressed, edged with a tubercle on each side at their base. Inferior incisors, inclined and notched; posterior grinders rough, with points and notches; ears small and rounded; tail of uncertain length; a large membrane envelopes the neck, anterior and posterior extremities, the fingers and the tail; fingers of the anterior extremities short; nails bent and slender; two pectoral mammae.

Galeopithecus rufus.—THE COLUGO.

Plate VII. fig. 1.

Fur red, without spots; head very small; arms very muscular. About a foot long. Inhabits the Pelew Islands.

TRIBE II.—VESPERTILIONES.

Fingers of the hands much elongated, supporting very fine membranes, the thumb alone being separated, but not opposable.

DIVISION I.—Grinders without sharp points; and no tail.

Genus 2.—PTEROPUS.—Brisson.

Incisors $\frac{4}{4}$, conical; canines $\frac{1-1}{1-1}$; grinders $\frac{5-5}{6-6}$; total 34: each tooth furnished with two roof-shaped ridges, forming a longitudinal furrow along them. Nose without a membranaceous appendage: tail short, or wanting. Interfemoral membrane sloped off, index finger with a third phalanx and a nail. Tongue papillary.

Pteropus vulgaris.—THE TERNATE BAT.

Plate V. fig. 12.

Fur of under parts black, except about the pubis, where the colour is red; face reddish brown, sides same colour: hair all

over the body coarse. Length of body about ten inches ; expanse of wings upwards of three feet. Inhabits the Isle of France and Bourbon.

SUB-DIVISION II.—With a tail.

Pteropus stramineus.—THE LESSER TERNATE BAT.

Fur reddish yellow ; neck red ; tail very short ; length of body upwards of five inches ; expanse of wings two feet. Inhabits Timor and the Island of Ternate.

SUB-DIVISION III.—With wings upon the back.

Pteropus palliatus.—THE PALE TERNATE BAT.

Membrane of the wings attached to the dorsal line, giving it the appearance of a mantle. Body about four inches long ; tail six and a half inches ; extent of wings fourteen inches.

Genus 3.—CEPHALOTES.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{4}{6}$; canines $\frac{1-1}{1-1}$; molars $\frac{5-5}{4-4}$; total 32. Incisors in the upper jaw, insulated and distinct ; in the lower, almost close ; upper surface of the molars large, flattened, without tubercles or ridges. No membranaceous appendage to the nose ; index finger of one species with a nail, and of the other without one ; tail very short : interfemoral membrane sloped off ; membrane of the wings attached to the dorsal line.

Cephalotes Pallasii.—PALLAS'S CEPHALOTE.

Plate VII. fig. 2.

Fur ash-coloured gray above, pale white beneath, undulated on the abdomen ; nostrils prolonged into a tube, very distant and open : index finger provided with a nail. Body about four inches long ; wings one foot four inches when extended ; tail not an inch long. Inhabits the Moluccas.

DIVISION II.—With pointed insectivorous grinders.

Genus 4.—MOLOSSUS.—Geoffroy.

Generic Character.—Incisory teeth $\frac{2}{2}$; canines $\frac{1-1}{1-1}$; grinders $\frac{4-4}{5-5}$; total 26. Incisors in the upper jaw bifid, converging, and separated from the canine teeth; in the lower very small, and crowded together, each having two small points; the molars with several sharp points; head and muzzle very large; nostrils open; ears large, united at their base, and provided with a smaller secondary tragus: without any membranaceous appendage at the nose; interfemoral membrane, narrow and cut rectangular; tail long.

Molossus amplexicaudatus.—THE RING-TAILED MOLOSSUS.

Plate VII. fig. 10.

Fur blackish, but lighter underneath; interfemoral membrane large, entirely enveloping the tail. Body from three to four inches long. Inhabits Cayenne.

Genus 5.—NYCTINOMUS.—Geoffroy.

Generic Character.—Incisory teeth $\frac{2}{4}$; canine teeth $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; total 28. The incisors are conical and contiguous in the upper jaw, and small in the lower; molars furnished with sharp tubercles; nose flat, parallel with the lips, which are deeply cleft and wrinkled; ears large, and united with the tragus; tail long, extending in part beyond the interfemoral membrane; nose without appendage; hind feet five-toed, covered with long hair; wings very large.

Nyctinomus Bengalensis.—THE BENGAL NYCTINOME.

Plate VII. fig. 3.

Fur mixed with ash-colour, paler below; snout blunt, projecting beyond the lower jaw; nostrils small circular holes remote from each other, placed under the margin; neck short, covered with hair scarcely discernible. From nose to tail three inches. Inhabits Puttahaut in Bengal.

Genus 6.—CHEIROMELES.—*Horsfield.*

Generic Character.—Incisory teeth $\frac{2}{2}$; canines $\frac{1-1}{1-1}$; cheek teeth $\frac{4-4}{5-5}$; total 26. Face conical; ears distant and spreading; operculum short, semicordate, and blunt; interfemoral membrane short; tail exserted; thumb distinct; claw flat, fringed on the edge with a series of bristles.

Cheiromeles torquatus.—THE COLLARED CHEIROMELES.

(Horsfield's Zoology of Java, No. 7.)

Neck covered with longish hairs; back naked and dotted. Inhabits the Indian Archipelago.

Genus 7.—STENODERMA.—*Geoffroy.*

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; grinders $\frac{4-4}{4-4}$; total 28. Ears moderate, lateral, and distinct; nose simple; interfemoral membrane only rudimentary, bordering the legs: without tail.

Stenoderma rufa.—THE RED STENODERME.

Fur bright chestnut; ears small, lateral, and isolated, without orellion; no tail. Length of the body about three inches; expanse of wings nearly twelve inches.

Genus 8.—NOCTILIO.—*Geoffroy.*

Generic Character.—Incisors $\frac{4}{2}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{4-4}$; total 26. Two upper intermediate incisors larger than the others, lower incisors placed before the canine teeth; the molars furnished with sharp tubercles; ears small, lateral, and insulated; muzzle short, thick, and cleft, furnished with warts or fleshy tubercles; nose without an appendage; interfemoral membrane large; tail extending a little beyond the membrane; claws of hind feet very large.

Noctilio unicolor.—THE PERUVIAN NOCTILIO

Plate VII. fig. 4.

Head round; muzzle blunt; ears large and strait, sharp at the ends, and pointing forwards; tail inclosed in the membrane, which joins to each hind leg, and is also supported by two cartilaginous ligaments; colour of the fur iron-gray; tibia and fibula separated, each invested by its own hairy skin. Size of a rat. Inhabits Brazil.

Noctilio rufus.—THE RED NOCTILIO

Plate VIII. fig. 1.

Body reddish-brown; legs and ears nearly destitute of hairs. Inhabits Brazil.

Genus 9.—PHYLLOSTOMA.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{5-5}{5-5}$; total 32. The incisory teeth are pressed close between the canines, the intermediate being the largest; nose supports two membranous crests—one like a leaf, and the other like a horse-shoe; ears large, without fur, and not united; tail and interfemoral membrane more or less developed, varying in different species; tongue forked, with sharp horny prickles.

* Tail distinct, shorter than the extent of the interfemoral membrane.

Phyllostoma hastatum.—THE JAVELIN BAT.

Fur brownish red above, yellowish brown on the abdomen; nasal leaf like a spear-head, small at the bottom and top, and swelling out in the middle; horse-shoe appendage very large; a range of warts in the form of the letter V, on the upper lip; tail short, entirely enveloped in the membrane, which is large. Length of the body four inches; expanse of wings about twenty-one inches. Inhabits Guiana.

** Without a tail.

Phyllostoma spectrum.—THE SPECTRE VAMPIRE.

Plate VIII. fig. 3.

Fur on the body ash-coloured ; nose long, at the tip of which is an upright, long, conical membrane, reflected at the point ; teeth large ; ears long, broad, and upright ; membrane extending from one hind leg to the other. Five inches and a half long ; expanse of wings two feet two inches. Inhabits South America.

Genus 10.—VAMPYRUS.—Spix.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{4-4}$; total 28. Incisory teeth conical, the two intermediate in the upper jaw being largest ; the first molar has one tubercle, and the others three each ; mouth somewhat obtuse ; under jaw ventricose ; tail short, involved in the membrane, except just at the apex.

Vampyrus soricinus.—THE SORICINE VAMPIRE.

Fur mouse-coloured on the back, brownish-gray underneath ; chin smooth. Inhabits Brazil. Spix Brazil, f. 36, f. 2, 6.

Genus 11.—GLOSSOPHAGA.—Geoffroy.

Generic Character.—Incisory teeth $\frac{4}{4}$; canine teeth $\frac{1-1}{1-1}$; molars $\frac{6-6}{6-6}$; total 24. Incisory teeth are ranged regularly ; canines of medium size ; the tongue very long, and extensible, acting as an organ of suction ; nose with a small crest, shaped like the head of a lance ; interfemoral membrane and tail inconsiderable. Sucks the blood of man and animals by means of the tongue.

Glossophaga soricina.—THE LEAF-GLASSOPHAGA.

Plate VIII. fig. 9.

Fur mouse-coloured above, bright brown underneath ; muzzle long, surmounted by a small spear-shaped appendage ; body

about two inches long; without any tail; expanse of the wings about ten inches. Inhabits Surinam, Cayenne, &c.

Genus 12.—MORMOOPS.—Leach.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; grinders $\frac{5-5}{5-5}$; total 32. The two intermediate incisory teeth in the upper jaw largest; ears large and close, furnished with auricles; nasal appendage single, erect, confluent with the ears; index finger with two joints; middle finger with four; the others with three; tail, except the last joint, enveloped in the membrane.

Mormoops Blainvillii.—BLAINVILLE'S MORMOOPS.

Plate VII. fig. 5.

Nasal leaf plaited; ears above with double lobes; labial processes divided. Inhabits Jamaica.

Genus 13.—MEDATEUS.—Leach.

Generic Character.—Incisory teeth $\frac{4}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; total 30. The two intermediate incisory teeth in the upper jaw longest; two nasal appendages, the one vertical, the other lunate and horizontal; lips furnished with a series of warts; without a tail.

Medateus Lewisii.—LEWIS'S MEDATEUS.

Fur blackish; nasal leaf vertical, spear-shaped; ears rounded; expanse of wings seventeen inches.—Linnæan Transactions, xiii. p. 81.

Genus 14.—MEGADERMA.—Geoffroy.

Generic Character.—Incisory teeth $\frac{0}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; total 26. The canine teeth are triangular in the upper, and inclining backwards in the lower jaw; ears very large, and united; interior ears much developed; nose with three appendages, one erect, one foliaceous or horizontal, and the third

horse-shoe-shaped; without any tail; interfemoral membrane square; third finger without the nail joint.

Megaderma spasma.—CORDATED BAT.

Plate VII. fig. 6.

Fur reddish, brighter on the head; the erect nasal appendage heart-shaped, moderate in size; foliaceous appendage same shape as the former, but very large; tragus semicordate. Body about four inches long. Inhabits the Isle of Ternate.

Genus 15.—RHINOLOPHUS.—*Geoffroy*.

Generic Character.—Incisive teeth $\frac{2}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{5-5}{5-5}$; total 30. Upper incisors very small, and not permanent; molars furnished with sharp points; nose provided with a horse-shoe-shaped crest, surmounted by a leaf; ears distinct; interfemoral membrane large; two pectoral mammæ, and two warts on the pubes, having the appearance of teats, but destitute of lactiferous glands; tail long and free.

Rhinolophus unihastatus.—HORSE-SHOE RHINOLOPHUS.

Plate VII. fig. 7.

Fur ash-coloured, mixed with red on the back, abdomen yellowish-gray, membrane black; ears long, broad, and pointed; the anterior nasal membrane horse-shoe-shaped, the posterior shaped like a lance-head. Length of the body about three inches; expanse of the wings about sixteen inches. Inhabits Europe, frequenting old quarries and caverns.

Genus 16.—NYCTERIS.—*Geoffroy*.

Generic Character.—Incisors $\frac{1}{6}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{4-4}$; total 30. Incisive teeth lobed; molars with sharp tubercles; forehead with a deep longitudinal groove; nostrils covered with a cartilaginous moveable operculum; interfemoral membrane larger than the body, embracing the tail, which is terminated in the form of the letter T; the mouth with a pouch on each side,

communicating with a large membranaceous sac, formed by the skin of the body.

Nycteris Daubentonii.—DAUBENTON'S NYCTERIS.

Plate VII. fig. 9.

Fur reddish-brown on the back, yellowish-white on the abdomen, throat, breast, and head, except the crown; ears very large; tragus simple, very small. Length of body about an inch and a half; expanse of the wings from eight to nine inches.

Genus 17.—RHINOPOMA.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{2}{4}$, canines $\frac{1-1}{1-1}$, cheek teeth $\frac{4-4}{5-5}$; total 28. The upper incisors separated from each other; the nose long, truncated, and surmounted by a small leaf; nasal openings contracted, transverse, and operculated; ears large, united, and hanging over the face; forehead large, concave, interfemoral membrane narrow, and cut square; tail long, extending beyond the membrane.

Rhinopoma microphylla.—SMALL-LEAVED RHINOPOME.

Fur ash-coloured; tail very long and thin; nostrils can be closed or opened, at the will of the animal, as in the seal genus. Two inches long; expanse of wings seven inches. Inhabits Egypt.—Brunnich, l. c. vi. p. 50, f. 1, 2, 3, and 4.

Genus 18.—TAPHOZOUS.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{0}{4}$; canines $\frac{1-1}{1-1}$; molars $\frac{4-4}{5-5}$; total 26. Nose with a furrow, as in the two preceding genera; but destitute of an appendage; ears moderate, separated from each other; interfemoral membrane large, tail shorter than the membrane, and exserted on its upper side.

Taphozous perforatus.—THE PERFORATED TAPHOZOUS.

Fur red; gray above, ash-coloured beneath, the lower part of each hair white; inner ears in the form of a hatchet, and termi-

nated by a rounded edge. Three inches long; expanse of the wings nine inches. Inhabits Egypt; frequenting ancient buildings, at Thebes, Ombo, &c. — Geoffroy's Egypt, ii. plate 3, fig. 1.

Genus 19.—MYOPTERIS.—Geoffroy.

Generic Character.—Incisors $\frac{2}{2}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{5-5}$; total 26. Nose without a foliation, membrane, or furrow; muzzle short and thick; forehead depressed; ears large; tail long, half enveloped at its base, free at the extremity.

Myopteris Daubentonii.—DAUBENTON'S MYOPTERIS.

Fur on the top of the head and back brown; the under parts pale yellowish-white. Body three inches in length. Country unknown.

Genus 20.—CELÆNO.—Leach.

Generic Character.—Incisive teeth $\frac{2}{2}$, no canine teeth, molars $\frac{8}{8}$; total 20. The upper incisive teeth acuminate and simple, the lower formed, as it were, of four columns; the anterior grinders in both jaws acuminate, the three posterior acutely tuberculated.

Celæno Brooksiana.—BROOKS'S CELÆNO.

Fur on the back rust-coloured, abdomen and shoulders yellowish; membrane black; ears acuminate, distinct, the anterior margin rounded, the posterior straight; oreillon very small; tail doubtful.

Genus 21.—ÆELLO.—Leach.

Generic Character.—Incisors $\frac{2}{4}$, no canines, molars $\frac{4-4}{6-6}$; total 26: the two upper anterior acuminate; the third bifid, and the fourth with three edges; in the lower jaw, the three anterior acuminate, the three posterior bifid.

Aëlo Cuvieri.—CUVIER'S AELLO.

Fur of an isabella-ferruginous colour; wings dark umber-brown; ears short, approximated, broad, no oreillon; tail not extending beyond the interfemoral membrane. Habitat unknown.

Genus 22.—SCOTOPHILUS.—Leach.

Generic Character.—Incisory teeth $\frac{4}{4}$, no canines, grinders $\frac{4-4}{4-4}$; total 26. Grinders furnished with acuminate processes; in the upper jaw the two lateral teeth shorter. Habitat unknown.

Scotophilus Kuhlii.—KÜHL'S SCOTOPHILUS.

Fur ferruginous, with the ears, nose, and wings brown; ears distinct; oreillon small; tail reaching to the end of the membrane. Habitat unknown.

Genus 23.—ARTIBEUS.—Leach.

Generic Character.—Incisory teeth $\frac{4}{4}$, no canine teeth, molars $\frac{4-4}{5-5}$; total 26. The two intermediate incisors in the upper jaw largest; in the lower jaw truncated, the two intermediate largest, reeded in front; the posterior teeth small.

Artibeus Jamaicaensis.—JAMAICA ARTIBEUS.

Fur dark brown on the upper parts, mouse-coloured underneath; ears small; nasal appendages and membranes, dark-brown; with two nasal appendages, one horizontal, the other vertical and acuminate, marked with a streak anteriorly; without any tail. Inhabits Jamaica.

Genus 24.—DIPHYLLA.—Spix.

Generic Character.—Incisive teeth $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{4-4}$? or $\frac{8-8}{8-8}$? total 28 or 42. The upper middle largest, apex six-pointed; the canines are scarcely exerted; the molars have a short crenulated apex; lips smooth, with two short, erect,

truncated leaves, placed close together; hind legs nearly as long as the anterior; tail and interfemoral membrane deficient.

Diphylla ecaudata.—THE TAILLESS DIPHYLLA.

Fur on the body woolly; of a black fuscous-brown; head and abdomen brownish-gray beneath; wings blackish, nearly naked; face denuded of hair near the ears.—Spix, Sim. Braz. 13, 6, f. 7.

Genus 25.—MONOPHYLLUS.—Leach.

Generic Character.—Incisory teeth $\frac{4}{0}$, canines $\frac{1-1}{1-1}$, grinders $\frac{5-5}{6-6}$; total 30. The two intermediate incisors the largest; the two first, in the upper jaw, distant, the rest tuberculated on both edges; the second and third, in the lower jaw, with a space between them.

Monophyllus Redmani.—REDMAN'S MONOPHYLLUS.

Fur dark-brown above, mouse-colour beneath; ears, membranes, and nasal appendages, brown; only one of the nasal appendages erect, and acute; ears round; beard elongated. Inhabits Jamaica.

Genus 26.—DYSOPES.—Fred. Cuvier.

Generic Character.—Incisory teeth $\frac{2}{4}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{5-5}$; total 28. Upper incisors close, elongated, and elliptical.

Dysopes mops.—Inhabits India.—F. Cuvier's Dents de Mam. 49.

Genus 27.—NYCTOPHILUS.—Leach.

Generic Character.—Incisory teeth $\frac{2}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{4-4}$; total 28. Upper incisory teeth conical and short, the under equal; the first grinder in the upper jaw acute, with one tubercle, the second and third with four tubercles, and the fourth

with three; in the lower jaw the first is acute and conical, the other three tuberculated.

Nyctophilus Geoffroy.—GEOFFROY'S NYCTOPHILUS.

Fur dull brown on the back, whitish on the under parts; ears broad; two erect nasal appendages, the posterior longest; membrane blackish; tail as long as the interfemoral membrane. Habitat unknown.—Linn. Trans. xiii. pl. 1.

Genus 28.—THYROPTERA.—Spix.

Generic Character.—Dentition, unknown; body slender, small; nose simple; wings very narrow, running down to the tarsus; thumb of the hand armed below with a somewhat concave patella; interfemoral membrane expanded, not extending beyond the feet; tail long, exserted beyond the membrane.

Thyroptera tricolor.—THE THREE-COLOURED THYROPTERA.

Fur of the body above fuscous brown, pure white beneath; wings and legs deep black. Inhabits Brazil, frequenting the shores of the river Amazon.—Spix, Sim. Braz. t. 36, f. 69.

Genus 29.—PROBOSCIDEA.—Spix.

Generic Character.—Incisors $\frac{4}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{5-5}{5-5}$; total 34. Upper incisive teeth very small, distant, and diverging; the lower lobed, and placed in a semicircle; the front molars small, the rest with many tubercles; wings narrow; tail long, half involved in the interfemoral membrane.

Proboscidea saxatilis.—THE ROCK PROBOSCIDEA.

Fur of the upper parts of the body variegated with gray and brown; ash-coloured, inclining to mouse-colour, beneath; wings and feet fuscous-brown. Inhabits Brazil, frequenting rocky places on the shores of St Francis.—Spix, Sim. Braz. t. 35, f. 8.

Genus 30.—*VESPERTILIO.*—*Linnaeus.*

Generic Character.—Incisory teeth $\frac{4}{5}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{5-5}$, $\frac{6-6}{6-6}$, $\frac{5-5}{5-5}$ or $\frac{5-5}{6-6}$; from 32 to 36. The upper incisors are separated in pairs, cylindrical and pointed, very close, with two cutting lobes directed forward; the anterior molars conical, the posterior having several sharp points or prominences; the nose simple, without any membranaceous appendage, ridge, or furrow; ears lateral and distinct, internal ears visible; tongue smooth, not protractile; index finger with but one phalanx, the middle with three, the annular and little finger with two; tail not exceeding the interfemoral membrane. Sebaceous glands under the skin of the face, assuming different forms and dimensions in the various species.

Vespertilio murinus.—THE COMMON BAT.

Plate V. fig. 13.

Fur reddish-brown above, deeper according to age; grayish beneath; face nearly naked; forehead very hairy; nose prominent, projecting beyond the under lip; nostrils opening laterally; eyes large, ears naked, inclined backwards, separate, with the points turning forward; body three and a half inches long; expanse of wing fifteen inches. Inhabits Europe, frequenting old towers in holes, but never building on trees.

Genus 31.—*PLECOTUS.*—*Geoffroy.*

Generic Character.—Incisors $\frac{4}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{4-4}{4-4}$ or $\frac{5-5}{6-6}$; total 30 or 36. Ears larger than the head, often much developed; united together at the base; with four or five superior molars, and from four to six inferior on each side. In other respects they agree with the *Vespertilio*.

Plecotus auritus.—THE LONG-EARED BAT.

Plate VIII. fig. 2.

Ears almost as long as the body; fur gray, deeper above than below; body nearly two inches long; expanse of wings eleven or twelve inches. Inhabits Europe, and is common in Britain.

M. Rafinesque has proposed two other Genera of the Bat tribe, namely, *Hypexodon* and *Nycticeius*, but he has not yet given satisfactory characters of these Genera.

Genus 32.—ATALAPHA.—Rafinesque.

Generic Character.—Without incisory teeth; nose simple; ears separate, and provided with auricles; tail long, extending beyond the interfemoral membrane, or comprised in it.

Atalapha Americana.—THE NEW-YORK ATALAPHA.

Ears broad, short, and rounded; tail encompassed by the interfemoral margin. Inhabits the State of New-York.

FAMILY II.—INSECTIVORA.

Four extremities formed for walking; three kinds of teeth; stomach simple and membranous; intestines short.

The grinders are furnished with various sharp points; the canine teeth in some species very long, in others short, in which case they are termed false cheek teeth, or grinders; the incisory teeth varying also, both in number and length; teats ventral, or both ventral and pectoral; legs short; mode of locomotion always plantigrade; all the feet pentadactylous, except in one species.

TRIBE I.

With long incisors in front, false canines, not longer than the grinders.

Genus 33.—ERINACEUS.—Linnaeus.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{5-5}{4-4}$; total 34: the intermediate upper incisory teeth separate, and are of a cylindrical shape; the canine teeth are smaller than the grinders; the body is thick, covered with prickles on the back and sides, and on the belly with long, stiff, tubulate hairs; the crown of the head high; muzzle acute; the ears are of a me-

dium size, somewhat rounded; the toes have strong nails; tail very short, and in some species none; the mammæ are ten in number—six pectoral and four ventral.

Erinaceus Europæus.—THE COMMON HEDGE-HOG.

Plate IX. fig. 1.

The ears are short; prickles very sharp, about an inch long, set in clusters, diverging in their directions, and crossing each other, like rays radiating from various centres; the points are white, and the hair of the abdomen dirty white.

Genus 34.—SOREX.—*Linnæus*.

Generic Character.—Incisory teeth $\frac{2}{2}$ in the upper jaw, indented at their base; lateral incisors $\frac{3-3}{2-2}$ or $\frac{4-4}{2-2}$ conical, small, shorter than the grinders, which are $\frac{4-4}{3-3}$; total 28 or 30. Muzzle and nose much elongated, the latter moveable; ears and eyes small; tail varying in length—round, compressed, or four-sided; feet five-toed; nails crooked, short, curved, and pointed; teats, six or eight, both pectoral and ventral; Sebaceous gland on each flank, exuding a strong smelling secretion.

Sorex araneus.—COMMON SHREW.

Plate IX. fig. 2.

Fur extremely soft, mouse-coloured, lighter underneath; ears large and naked, with two lobes or folds within; tail subquadrate, not so long as the body. About two inches long. Inhabits Europe.

Genus 35.—MYGALE.—*Cuvier*.

Incisory teeth $\frac{2}{4}$, the two upper large, very strong, conical; lower incisors, with the two middle ones smallest; false canines $\frac{1-2}{1-2}$; grinders $\frac{4-4}{3-3}$; total 26. The four posterior above, and the three underneath, with rugose points; nose pointed, flexible; no external ears; eyes very small; tail long, scaly, and laterally compressed; feet palmated.

Mygale Muscovitica.—MUSCOVY MUSK-RAT.

Plate IX. fig. 3.

Fur brown above, and dusky ash below ; nose long and slender ; tail long, scaly, and compressed, striated at its base ; size of the common rat. Inhabits southern Russia and Lapland.

Genus 36.—TUPAIA.—*Raffles*.

Incisory teeth $\frac{2}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{7-7}{6-6}$; total 28. Body elongated ; head triangular, attenuated, blunt ; eyes and ears large ; tail very long ; four ventral mammæ, diurnal.

Tupaia ferruginea.—THE FERRUGINOUS TUPAIA.

Fur ferruginous ; muzzle slightly pointed. Inhabits Java.

Genus 37.—SCALOPS.—*Geoffroy*.

Incisory teeth $\frac{2}{4}$, upper ones large ; lateral, or conical teeth, $\frac{3-3}{3-3}$, with a void between them and the incisors ; grinders $\frac{3-3}{3-3}$; total 30, with several tubercles ; muzzle elongated and cartilaginous ; no external ears ; anterior toes large, united as far as the third phalange, armed with long, strong, flat nails, constructed for digging.

Scalops Canadensis.—THE CANADIAN SCALOPS.

Fur gray-brown ; eyes hidden within the hair ; nose long, terminated by a button-shaped cartilage. Inhabits Canada and Virginia.

Genus 38.—CHRYSOCHLORIS.—*Cuvier*.

Incisory teeth $\frac{2}{4}$, conical teeth $\frac{3-3}{3-3}$, grinders $\frac{6-6}{5-5}$; total 40. The intermediate lower incisors very small ; anterior extremities with three toes only, armed with strong nails, like those of the Mole ; hinder extremities with five toes ; eyes very small ; no external ears ; muzzle terminated with a cartilaginous appendage.

Chrysochloris Capensis.—THE CAPE CHRYSOCHLORIS,
OR SHINING MOLE.

Plate VIII. fig. 8.

Fur brown, but giving in certain angles of light fine iridescent metallic green and copper colour, with five toes on the hind feet.

Genus 39.—TALPA.—*Linnaeus*.

Generic Character.—Incisive teeth $\frac{6}{8}$, small, placed vertically in the upper jaw, forming an arch, and a little inclining in the lower; canine teeth $\frac{1-1}{1-1}$ triangular; cheek teeth $\frac{7-7}{6-6}$; total 44. The three anterior in the upper, and the two in the lower jaw, smaller than the rest; head elongated; eyes extremely small; no external ears; pentadactylous; fore feet very large; toes united to the nails, which are strong and slightly arched; hinder feet weak.

Talpa Europæa.—THE COMMON MOLE.

Plate IX. fig. 4.

Fur cinereous black, soft, and shining like velvet; five toes on each foot, with concave nails; limbs short; tail scaly. About five inches long. Inhabits Europe.

There are several varieties of this species, namely, white, white and black marbled, pale fawn colour, and ash-coloured.

Genus 40.—CENTENES.—*Illiger*.

Incisors $\frac{6}{6}$ or $\frac{4}{6}$, canine teeth $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 38 or 40. The canines similar to the grinders; the first grinders are very small, the rest pointed; muzzle produced; ears scarcely visible; legs short, body nearly touching the ground, covered with short stiff spines, but divested of the power of turning into a ball; toes five; without a tail.

Centenes setosus.—THE TENREC.

Plate VIII. fig. 10.

Spines long, flexible, yellowish, intermixed with black, with a few bristles on the head and shoulders; six incisory teeth in each jaw. Nearly the size of a rabbit. Inhabits Madagascar and the Isle of France.

Genus 41.—CONDYLURA.—*Illiger*.

Incisory teeth $\frac{6}{4}$, canines $\frac{1-1}{1-1}$, conical teeth $\frac{5-3}{5-5}$, grinders $\frac{4-4}{3-3}$; total 40. The superior incisory teeth are anomalous; the two intermediate ones are of considerable breadth; muzzle produced, provided with membranous radiating spines around the nostrils; no external ears; eyes very small; body thick; feet with five toes; nails on the fore-feet strong.

Condylura cristata.—THE RADIATED MOLE.

Plate VIII. fig. 7.

Fur very close, short, and fine; of a sooty-black colour; nostrils surrounded by a radiated membrane; tail not quite half the length of the body. About four inches long. Inhabits Canada.

FAMILY III.—CARNIVORA.

Six incisors in each jaw; molars not furnished with sharp points, as in the preceding family, but either trenchant or tuberculous, or both; the species more or less carnivorous, in proportion to the tuberculous character of these teeth; canines long and strong.

TRIBE I.

Beasts of prey; the soles of their feet resting entirely, from the toe to the heel, on the ground, when walking.

Genus 42. — URSUS. — Linnæus.

Generic Character.—Incisory teeth $\frac{6}{6}$; canines $\frac{1-1}{1-1}$, molars $\frac{4}{4}$ to $\frac{7}{7}$; total number from 32 to 44. The false molars are very small, make their appearance late, and fall out early; body thick, covered with strong hair; ears somewhat long, and slightly acuminate; toes, five, furnished with strong curved claws, destitute of retractility, blunt in their edges, and more calculated for climbing trees and burrowing in the earth, than for the purposes of prehension, or destroying other animals; tail short; six teats, two of which are pectoral and four ventral.

Bears are large clumsy animals, with thick strong limbs. The cartilage of their nose is mobile. They dig caves for their residence, where they pass the winter in a state of semi-torpidity, and without taking any aliment.

Ursus arctos.—THE BROWN BEAR.

Plate XI. fig. 1.

Colour of fur deep brown, nearly black on the legs and feet; the forehead rises abruptly behind the eyes, assuming a regular convex form; muzzle broad and mobile; upper lip capable of great extension; eyes very small. About four feet long. Inhabits Europe and the temperate parts of Asia.

Ursus maritimus.—THE POLAR BEAR.

Plate XI. fig. 2.

Head considerably elongated, which, when viewed in profile, presents nearly a straight line; upper part of the cranium depressed; neck nearly as thick as the head, and double the length of that of the Brown Bear; eyes very small; hair long, soft, and white, with a yellowish tinge above. About seven feet and a half long. Inhabits the Polar Sea.

Genus 43. — PROCYON. — Storr.

Generic Character.—Incisory teeth $\frac{6}{8}$; canines $\frac{1-1}{1-1}$, large and compressed; grinders $\frac{6-6}{6-6}$; total 42. The three first pointed, the three posterior tuberculated; body rather slight; feet with

five toes ; nails sharp ; muzzle pointed ; ears small ; tail long and pointed, with six ventral teats.

Procyon lotor.—THE RACCOON.

Plate IX. fig. 6.

Fur grayish-brown ; muzzle white, with a brown streak across the eyes ; tail long, bushy, alternately annulated, with dark grayish slate colour, and white ; back arched ; fore legs longer than the hind ones. Length about two feet ; tail twelve inches. Inhabits Mexico, the West Indies, and South America.

Genus 44.—*NASUA*.—*Storr*.

Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 40. Under incisory teeth parallel ; the three posterior grinders with tubercles ; feet with five toes, semi-palmate ; nails strong ; body long, thin ; nose elongated and moveable ; tail long ; teats six, ventral.

Nasua fusca.—THE BROWN COATI.

Plate XVII. fig. 1.

Fur bright bay, smooth and soft ; breast whitish ; three white spots above each eye ; a longitudinal white line along the nose ; hind legs long ; tail long, bushy, and annulated. About a foot long. Inhabits Brazil.

Genus 45.—*CERCOLEPTES*.—*Cuvier*.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{5-5}{5-5}$. The two first incisors pointed in front, the three posterior tuberculated ; body thin ; head round ; muzzle not produced ; tongue extensible ; ears oval ; feet large, membranous, five-toed ; claws armed with strong crooked nails ; tail long and prehensile, like that of the Sapajous.

Cercoleptes caudivolvulus.—THE POTTO, OR YELLOW MACAUO.

Plate XVII fig. 2.

Fur silky, of a bright brownish-yellow. About nineteen inches long. Inhabits South America.

Genus 46.—*TAXUS*.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{5-5}{6-6}$; total 38. The first grinder very small, second and third acute, the fourth cutting on the outer side, the fifth large and tuberculous; the body is thick; legs very short; feet with five toes and strong nails; muzzle moderately long; ears short and round; eyes small; tail very short, with a pouch under it, containing a fetid secretion.

Taxus Vulgaris.—THE BADGER.

Plate IX. fig. 5.

Fur coarse and bristly, grayish-brown on the sides, back, and tail; abdomen and legs entirely black; claws on the fore feet long, strong, and straight, formed for burrowing; ears and eyes small, the latter placed in a black stripe, which commences behind the ears, and tapers towards the nose. About two feet and a half long; tail six inches. Inhabits Europe.

Genus 47.—*GULO*.—*Cuvier*.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{1-1}{6-6}$ or $\frac{2-2}{6-6}$; total 36 or 38. The three first molars in the upper jaw, and the four first in the lower, are small, succeeded by a larger carnivorous or cutting tooth, and small tuberculous teeth at the back; the body low; head moderately elongated; ears short and round; tail short; feet with five toes, armed with crooked nails.

Gulo arcticus.—THE WOLVERENE, OR GLUTTON.

Plate X. fig. 6.

Fur of a deep chestnut on the sides, darker on the back;

body thick ; face and legs short, black ; tail bushy. About two feet two inches long. Inhabits the coasts on the Arctic sea.

Genus 48.—RATELUS.—F. Cuvier.

Generic Character.—Incisors $\frac{3}{3}$, canines $\frac{1-1}{1-1}$, molars $\frac{4-4}{5-5}$; total 28. Canines very thick and strong, somewhat triangular ; in the upper jaw two false molars, with pointed and conical crowns ; one lanceolate and one tuberculate ; lower jaw with three false molars, anterior to a broad lacerator ; body thick, depressed ; legs stout and short ; five toes on each foot, nails slightly arched and retractile ; without external ears ; snout prolonged ; muzzle naked ; tongue rough.

Ratelus mellivorus.—THE RATEL.

Plate X. fig. 9.

Fur dull ash-gray above, under parts of a deep black ; hair stiff and wiry ; a stripe of light gray passes from behind the ears along each side, forming a boundary between the colours of the back and lower parts ; claws on the fore feet extremely long and powerful, the middle three being longer than the others. Length nearly three feet, including the tail. Inhabits Africa. A variety is found in Asia, differing only in wanting the lateral light gray stripe.

TRIBE II.—DIGITIGRADES.

Beasts of prey, which walk on their toes only.

DIVISION I.—With a tuberculous tooth behind the carnivorous tooth, in the upper jaw.

Genus 49.—MUSTELA.—Linnaeus.

Generic Character.—Incisive teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{4-4}{5-5}$ or $\frac{5-5}{6-6}$; total 34 or 38. Head small and oval ; ears short and round ; body long vermiform ; legs short ; toes five, armed with sharp crooked claws ; no anal pouch, but a small gland, containing a strong fetid secretion.

Sub-Genus I.—PUTORIUS.—Cuvier.—Two false molars above, and three below; the great carnivorous tooth below, without an internal tubercle; muzzle short; fetid.

Mustela putorius.—THE POLECAT, OR FOU MART.

Plate X. fig. 3.

Fur from the root pale yellow, towards the extremity bright brown; small white spots on the head and muzzle. Length of the body one foot five inches; tail six inches. Inhabits the temperate parts of Europe.

Mustela furo.—THE FERRET.

Plate X. fig. 2.

Fur yellowish-white; tail bushy at the root, and pointed towards the point; eyes red. Body fourteen inches in length; tail five inches and a half. Inhabits Spain and Africa.

There is a variety variegated with white, black, and fawn-colour.

Mustela vulgaris.—THE COMMON WEASEL.

Plate X. fig. 1.

Fur reddish-brown above, and white underneath. Length of the body and head six inches; tail an inch and a half. Inhabits most of the temperate parts of Europe and North America.

A white variety is found in Sweden, Russia, and Siberia.

Sub-Genus II.—ZORILLES.—Cuvier.—Muzzle short; two false molars above, three below; nails of the fore feet strong and fitted for digging.

Mustela zorilla.—THE ZORILLA.

Fur irregularly variegated with black and white bands. Inhabits the Cape of Good Hope.

Sub-Genus III.—MARTES.—One false molar more in each

jaw than in the *Putorius*, and the lower large carnivorous tooth with a tubercle on the inner side.

Mustela zibellina.—THE SABLE.

Plate X. fig. 4.

Fur blackish brown, very glossy; the head and throat whitish; feet covered with fur to the ends of the toes. About eighteen inches in length. Inhabits Europe and Western Asia.

Genus 50.—MEPHITIS.—Cuvier.

Generic Character.—Incisory teeth $\frac{6}{6}$, canine teeth $\frac{1-1}{1-1}$, grinders $\frac{4-4}{5-5}$; total 34. The great carnivorous tooth provided with two tubercles on the inner side; the posterior tooth tuberculated, and very long and large; the toes of the feet separated, and furnished with long nails, formed for digging; the heel very little raised in walking; the palm and heel hairy; the tail long and bushy; in some of the species none.

Mephitis Americanus.—THE CHINCE, OR SKUNK.

Plate X. fig. 5.

Fur soft and shining, marked by white longitudinal bands, upon a blackish brown ground; tail long and furry.

There are many varieties of this species. Most of these are permanent and local in their habitats, and have been distinguished by naturalists and travellers as separate species. They are as follow:—

Variety *a*.—*The Yagouare*.—Blackish brown with many bands.

Variety *b*.—*The Skunk*.—Brown-black, with a white stripe down the dorsal line, and another on each side of it.

Variety *c*.—*The Zorille*.—Black and white, with a very fine tail.

Variety *d*.—*The Mapurita*.—Spotted black and white.

Variety *e*.—*The Puant*.—Male black; and the female black, bordered with white.

Variety *f*.—*The Orthula*.—Black and white, with yellow in some parts.

Variety *g.* — *The Tepemaxtla.* — Without any yellow; tail annulated with black and white.

Variety *h.* — *The Atok.* — Body marked with two white stripes; tail mixed black and white.

Variety *i.* — *The Ysquepatl.* — Marked with several white stripes.

Variety *k.* — *The Polecat* of Catesby. — With nine white stripes.

Variety *l.* — *The Conepate.* — With six white stripes.

Variety *m.* — *The Conepatl.* — With two white stripes on the tail only.

Variety *n.* — *The Mapurito.* — With one white stripe commencing on the forehead, and terminating half way down the back; tail white at its extremity.

Variety *o.* — *The Moufette.* — Fur brown-red, with two white stripes on the sides of the body, uniting in the form of a crescent behind the head; tail white and brown.

Variety *p.* — *The Chince.* — With two white stripes, very wide and large towards their posterior terminations: tail with long white hairs, mixed with a few black; forehead with a longitudinal white band, joined to that of the back; rest of the body brown, more or less deep, with two small white spots on the shoulders and belly.

Variety *q.* — *Feuillée's Chince.* — With two white stripes terminating on the sides.

Variety *r.* — *Interrupted Mephitis.* — Fur brown, with two short white parallel rays on the head, and eight upon the back, of which four are equal and parallel, and four rectangular, and placed in opposite directions.

Variety *s.* — *The Chinga.* — With a band of round white spots on the back.

Variety *t.* — *The Mephitic Weasel.* — With two spots on the head; four white dorsal stripes, and the tail furry.

Genus 51. — LUTRA. — Ray.

Generic Character. — Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{2}{2}$ or $\frac{2}{2}$; total 36 or 38. The lower great carnivorous tooth, with two points on its outer side; the head large and flattened; the ears short; the body long; tail long, flattened horizontally,

and tapering; legs short; feet webbed; nails crooked and sharp.

Lutra vulgaris.—THE OTTER.

Plate IX. fig. 12.

Fur brown above; whitish underneath; tail a little more than half the length of the body.

Genus 52.—ENHYDRA.—Fleming.

Generic Character.—Incisory teeth $\frac{6}{4}$, cheek teeth $\frac{1-1}{5-5}$, false grinders $\frac{2-2}{3-3}$. Body much elongated; hind legs and tail short.

Enhydra marina.—THE SEA OTTER.

Plate IX. fig. 13.

Fur deep brownish-black, very glossy; body very long; hind feet one-fourth the length of the body—hairy; tail one-fourth as long as the body.

DIVISION II.—With two tubercular flat teeth behind the great carnivorous tooth in the upper jaw.

Genus 53.—CANIS.—Linnaeus.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{6-6}{7-7}$ total 42. The three first grinders in the upper jaw are small and edged; they are termed false molars, or grinders; the great carnivorous tooth above bicuspid, with a small tubercle on the inner side, and two tuberculous teeth behind each of the carnivorous ones; muzzle elongated; shorter in some of the tame species and varieties; tongue soft, by which organ they perspire; ears in the wild species erect, in the tame ones usually pendulous; fore feet with five toes, hind feet with four toes; teats both inguinal and ventral.

Dogs.—Pupils of the eyes round.

Canis familiaris.—THE COMMON DOG.

Tail recurved into an arch, generally tipped with white; muzzle more or less elongated; fur varying in the nature of its hair.

This species is subject to infinite variety, resulting from domestication, food, climate, and other causes. There are many permanent varieties, which we have divided something on the plan adopted by M. F. Cuvier, but which we think nearer a natural arrangement than his.

DIVISION I.—Head elongated.

SECTION I.—Wild and half reclaimed dogs, which hunt in packs.

Variety 1.—*Australis*.—THE DINGO.—Plate XI. fig. 3.—Head much elongated, tapering abruptly; ears short, pricked; tail bushy; fur deep yellowish-brown. Inhabits New Holland.

Variety 2.—*Orientalis*.—THE DHOLE.—Body slender; chest deep; fur of a rich bay colour. Inhabits Eastern Asia, in a wild state; hunts in packs.

Variety 3.—*Villaticus*.—THE PARIAH.—Slender made, face small, muzzle sharp; ears short and pricked; chest deep, belly small, limbs very light; hair long, stiff, reddish-brown. Inhabits India.

Variety 4.—*Æthiopicus*. — THE EKIA. — Colour various; somewhat resembling the preceding; hair scanty; ears pricked. Inhabits Africa.

Variety 5.—*Brazilianus*.—THE SOUTH AMERICAN DOG.—Hair longish, on the back brown-gray, lighter on the belly, with ochre-coloured spots on the flanks and legs; muzzle elongated; ears short, pricked; tail rough. Inhabits South America.

Variety 6.—*Amazonius*.—THE ALCO.—Head very small; ears pendulous; spine curved; tail short. Inhabits South America.

Variety 7.—*Canadius*. — NORTH AMERICAN DOG. — Head large; ears pricked; tail long; hair thick.

SECTION II.—Domesticated Dogs, which hunt in packs or singly, principally by the eye, although sometimes the scent.

Variety 8.—*Graius Hibernicus*.—THE IRISH GREYHOUND.—Hair pale cinnamon or fawn; from three to four feet high; very strong and courageous.

Variety 9.—*Defendans*.—THE ALBANIAN DOG.—Size of the mastiff; hair fine, thick, and long, of a silky texture; of different shades of brown; tail long and bushy.

Variety 10.—*Lanarius*.—FRENCH MATIN.—Head elongated; forehead flat; ears erect, and slightly pendulous at tips; hair yellowish-fawn, with blackish, slate-coloured, oblique, and parallel indistinct rays all over the body. About two feet high.

Variety 11.—*Maculatus*.—GREAT DANISH DOG.—Hair white, marked all over with thick-set black spots and patches; ears long, white.

Variety 12.—*Caledonius*.—SCOTTISH HIGHLAND GREYHOUND.—Colour of hair sandy-brown, or fawn colour, very rough; head long and muzzle sharp; body strong, chest deep. About three and a half, or four feet high.

Variety 13.—*Graius Borealis*.—RUSSIAN GREYHOUND.—Hair dark amber-brown, long, bushy; tail spirally twisted. Nearly the size of the Irish Greyhound.

SECTION III.—Domesticated dogs, which hunt singly, and always by the eye.

Variety 14.—*Agasæus*.—THE GAZEHOUD.—Seemingly extinct.

Variety 15.—*Graius*.—THE GREYHOUND.—Plate XI. fig. 4.—Muzzle very much elongated; forehead very low; limbs long and slender; chest very deep; loins slender; back somewhat arched; hair short and smooth, generally fawn-coloured, but subject to great variety.

Variety 16.—*Graius Italianus*.—THE ITALIAN GREYHOUND.—Hair pale mouse-brown, very short and sleek; chest deep; loins small; limbs slender, beautifully formed. About half the size of the common greyhound.

Variety 17.—*Ægypticus*.—THE TURKISH GREYHOUND.—About half the bulk of the Italian greyhound; it is nearly naked; skin of a leaden or black colour; ears long and erect.

DIVISION II.—Head less elongated than former divisions.

SECTION IV.—Pastoral dogs, or such as are employed in domestic purposes.

Variety 18.—*Domesticus*.—THE SHEPHERD'S DOG.—Plate XII. fig. 5.—Ears erect, slightly reflected at their tips; muzzle sharp; tail somewhat incurved, which, with the back of the fore legs, are villous; hair on body long, woolly-like; generally black and white.

Variety 19.—*Carcinarius*.—THE CUR DOG.—Plate XII. fig. 6.—Resembles the last, but is smooth, with half-pricked ears; hair generally black and white.

Variety 20.—*Pomeranius*.—THE POMERANIAN DOG.—Hair long and silky; tail spiral and bushy; fore legs long, with hair on their backs; ears short and pricked.

Variety 21.—*Sibericus*.—THE SIBERIAN DOG.—Resembles the former, but all the legs are covered with long hair.

Variety 22.—*Greenlandicus*.—THE GREENLAND DOG.—Plate XII. fig. 7.—Muzzle acute; ears short and pricked; hair thick set, generally white; fore legs villous.

Variety 23.—*Islandicus*.—THE ICELAND DOG.—Head round; ears erect, and reflected at their tips; hair long and soft, white, with large black patches.

Variety 24.—*Borealis*.—THE ESQUIMAUX DOG.—Somewhat resembling the Pomeranian breed; head shaped like that of a wolf; ears short, erect; loins strong.

Variety 25.—*Lagopus*.—THE HARE-INDIAN DOG.—Plate XIII. fig. 8.—The Wild Variety.—Muzzle narrow, elongated, and pointed; tail thick, bushy, curved slightly upwards; hair straight, long, white, with patches of grayish-black and brown. Inhabits banks of Mackenzie River, North America.

Variety 26.—*Sensilis*.—THE NEWFOUNDLAND DOG.—Plate XII. fig. 8.—Head large, square; body large; hair long, shaggy; feet semi-palmated.

Variety 27.—*Russianus*.—THE RUSSIAN DOG.—Head large, with moderately long ears; tail curled over his back; hair long and curled, from seven to nine inches long.

Variety 28.—*Aquaticus*.—THE GREAT ROUGH WATER DOG.—Plate XI. fig. 7.—Hair long, curly; feet webbed; head broad; ears long.

Variety 29.—*Inquisitor*.—LARGE WATER SPANIEL.—Plate XII. fig. 1.—Size of a setter; strong in the bone; muzzle long, and moderately acute; face, and front of all his legs smooth; the rest of the hair much curled.

Variety 30.—*Fotor*.—THE SHOCK DOG.—Size of a small King Charles's dog; hair extremely long; head large; ears short, nearly hid among the hair.

SECTION VI.—Fowlers, or dogs whose natural inclination is to chase and point birds, and hunt singly by the scent.

Variety 31.—*Extrarius*.—THE SPRINGER.—Shaped like a setter, but two-fifths less; head larger in proportion; ears long; hair long and fine.

Sub-Variety 31.—*Extrarius* β .—THE COCKER.—Plate XI. fig. 5.—A third less than the former; body shorter, and head more round; ears long, and covered with flowing hair; tail truncated.

Variety 32.—*Alpinus*.—ALPINE SPANIEL.—Hair very long, and much curled, woolly at the roots; tail long and curved, erect; soles of feet covered with hair, toes semi-webbed. About two feet in height.

Variety 33.—*Index*.—THE OLD ENGLISH SETTER.—Head large, broad, and muzzle pointed; hair long, and curled. Nearly extinct.

Sub-Variety 33.—*Index*.—THE ENGLISH SETTER.—Plate XIII. fig. 1.—Forehead large and high; muzzle long, but not acute; ears long, shaggy; hair curled; chest deep; tail long, villous.

Variety 34.—*Brevipilis*.—KING CHARLES'S DOG.—Similar in shape to the cocker; ears very long, and tail much longer than that of the cocker.

Variety 35.—*Consolator*.—THE COMFORTER.—Plate XI. fig. 6.—Forehead broad, muzzle very acute; ears long; tail long, villous, and curled; hair of a fine silky texture. Very small.

Variety 36.—*Meliteus*.—THE MALTESE DOG.—Hair long, silky, and silvery white.

Variety 37.—*Leoninus*.—THE LION DOG.—Hair about the head, neck, and shoulders, long and silky; short on the other parts; tail bushy at tip. Very small.

Variety 38 *a*.—*Avicularis*.—THE SPANISH POINTER.—Plate

XII. fig. 3.—Head broad, muzzle square; ears semi-pendulous; chest and hind quarters strong; tail long; hair short and smooth.

Sub-Variety 38 *b.*—*Avicularis*.—THE ENGLISH POINTER.—Shaped like the preceding, but lighter in the make; muzzle more acute.

Sub-Variety 38 *c.*—*Avicularis minor*.—THE SMALL POINTER.—Shaped like the English pointer, but only two feet and half an inch from the point of the nose to the tip of the tail.

Sub-Variety 38 *d.*—*Avicularis*.—THE RUSSIAN POINTER.—Shaped like the Spanish pointer, but covered with long wiry hairs of a uniform black, or dark amber-brown.

Variety 39.—*Dalmatianus*.—THE DALMATIAN.—Plate XII. fig. 4.—Shape somewhat betwixt that of an English pointer and a fox-hound; head acute, and larger than that of the latter; ears long; colour of hair white, beautifully mottled, with irregular-sized brown or black spots.

SECTION VII.—Hounds which hunt in packs, by the scent.

Variety 40 *a.*—*Terrarius*.—THE SCOTCH TERRIER.—Plate XIII. fig. 2.—Legs short, body muscular, ears small and half-pricked; head large in proportion to his body; muzzle pointed, with a thick beard; hair rough and wiry. About fourteen inches high.

Sub-Variety 40 *b.*—*Terrarius*.—THE ENGLISH TERRIER.—Size and shape like the former, but the legs are longer; hair smooth.

Variety 41.—*Serpentis-destructor*.—THE SOUTH AMERICAN TERRIER.—Size of the Maltese dog; head small, muzzle acute; hair long and rough; tail very bushy; ears short, and half-pricked; body short and compact; legs small.

Variety 42.—*Sagax*.—THE OLD ENGLISH HOUND.—Body long, chest deep, head large; ears long and sweeping; countenance grave.

Variety 43 *a.*—*Sanguinarius*.—THE BLOOD-HOUND.—Tall, beautifully formed, reddish-brown, and exceeds in size all other hounds; tail long, smooth, slightly villous beneath.

Sub-Variety 43 *b.*—*Sanguinarius*.—AFRICAN BLOOD-HOUND.—Beautifully formed, something between a greyhound and pointer; head broad, muzzle long, sharp; ears long, pendulous;

tail long, naked, and tapering to a fine point; hair very short. Inhabits Central Africa.

Variety 44.—*Strenuus*.—THE STAG-HOUND.—Head large, square; ears very long and pendulous; tail very erect; hair white, with various patches of dark brown or black.

Variety 45.—*Celer*.—THE FOX-HOUND.—Plate XII. fig. 2.—Muzzle longer than the last; head small in proportion to the body; ears long, pendulous; chest deep and wide; tail thick, and carried high.

Variety 46.—*Leverarius*.—THE HARRIER.—Muzzle long; head thick and round; ears long, pendant; limbs strong; tail erect, somewhat curved.

Variety 47.—*Prestans*.—THE BEAGLE.—Smallest of the dogs of chase; legs short, body compact; head large, muzzle tapering, ears long, tail semi-erect.

Variety 48.—*Lutrans*.—THE OTTER-HOUND.—Head large and broad; ears long, pendant, and rough; face with long hairs; hair strong, shaggy, and wiry; legs thick.

Variety 49.—*Pugilis*.—THE BULL-TERRIER.—Head large, square, neck short, chest deep; legs very strong.

SECTION VIII.—Mongrel hounds, which hunt singly either by the scent or eye.

Variety 50.—*Indagator*.—THE LURCHER.—Shaped like a greyhound, but shorter, and more compact in the body; ears half pricked; hair long and coarse, of a grizzly gray, or pale sand-colour.

Variety 51.—*Saltator*.—THE TUMBLER.—Less than the greyhound, body more slender, and is allied to the lurcher.

Variety 52.—*Vertagus*.—THE TURNSPIT.—Head large, body long, legs short and crooked, tail twisted spirally over his back.

DIVISION III.—Head truncated.

SECTION IX.—Watch-dogs, which have no propensity for hunting.

Variety 53.—*Anglicus*.—THE MASTIFF.—Plate XIII. fig. 4.—Large, powerful; head large, short, and square; ears not quite half the length of the head, and pendant; lips full, up-

per one hanging over the under ; tail erect, somewhat curved at tip.

Sub-Variety 53.—*Anglicus*.—THE THIBET DOG.—Larger than the English mastiff ; head large, broad, and truncated ; forehead capacious ; ears shorter than those of the mastiff, and lips more deeply pendulous ; tail long, curved upwards, and villous ; hair over the whole body rough, of a deep black, with the feet, and a spot over each eye, of a bright brown.

Sub-Variety 53.—*Anglicus*.—THE CUBAN MASTIFF.—Less than the mastiff ; well made, and stout in their proportions ; head broad, flat ; muzzle short, broad, and abruptly truncate, slightly turned upwards ; lips very pendulous ; tail short, cylindrical ; hair bright brown, short and even. Inhabits Cuba.

Variety 54.—*Munio*.—THE BAN-DOG.—Lighter, smaller, and more active than the mastiff ; hair rough, and of a sandy-gray ; somewhat rough ; head more acute than that of the mastiff.

Variety 55.—*Molossus*.—THE BULL-DOG.—Plate XIII. fig. 3.—Low in stature, deep-chested, very muscular ; head short, square, and truncated ; muzzle turned considerably upwards ; under jaw projecting considerably beyond the upper ; eyes distant and prominent.

Variety 56.—*Pricator*.—THE PUG-DOG.—Shaped like the Bull-dog, but much smaller, and the body shorter ; tail spirally twisted over its back.

Variety 57.—*Dubius*.—THE SMALL DANISH DOG.—Supposed a cross of the Pug and some diminutive mongrel.

Variety 58.—*Hybridus*.—THE ROQUET.—Like the preceding ; eyes large, head round, ears very small and somewhat erect.

Variety 59.—*Descrepans*.—THE MOPSIE.—A variety of the Pug, but smaller ; with the head small in proportion to the size of the body ; nose less turned up.

Variety 60.—*Discors*.—THE ARTOISE DOG.—Nose very flat and short ; descended from the Pug.

Canis Lupus.—THE COMMON WOLF.

Plate XIII. fig. 5.

Head thick, oblong ; muzzle slender ; tail long, pendulous, with long hair ; general colour of hair yellowish gray ; ears short, pricked.

Canis aureus.—THE CHACAL, OR JACKAL.

Plate XIII. fig. 6.

Hair yellowish gray above, white underneath; tail bushy, black at the extremity; head small; neck long, slender. Inhabits Southern Asia, Africa, and Europe.

** Pupils of the eyes long; tail long and bushy.

Canis Vulpes.—THE COMMON FOX.

Plate XIII. fig. 7.

Yellow fawn above, white underneath; black behind the ears; tail bushy, tipped with black hairs; muzzle pointed; ears erect, acuminate; eyes diagonal.

Genus 54.—VIVERRA.—*Linnæus*.

Generic Character.—Incisory teeth $\frac{6}{6}$, canine teeth $\frac{1-1}{1-1}$, grinders $\frac{6-6}{6-6}$; total 40. In the upper jaw, three false grinders, which are a little conical and compressed; a large carnivorous bicuspid tooth, and two tuberculous ones; in the lower jaw are four false grinders; one bicuspid, and one large tuberculous tooth behind; the head is long, muzzle pointed; nostrils pierced on the sides of the nose; pupils of the eyes capable of being contracted almost into a line; tongue aculeated; feet with five toes, the claws partly retractile; with an oval pouch, more or less deep.

Sub-Genus I.—VIVERRA.—*Cuvier*.—Anal pouch very deep, and divided into two sacs, containing an unctuous, musky secretion; cheek teeth or grinders $\frac{6-6}{6-6}$.

Viverra Civetta.—THE CIVET.

Plate X. fig. 7.

Fur gray, with brown or black clouds or spots; tail with four or five rings of the same; it is shorter than the body; a mane along the ridge of the back. Inhabits Africa.

Mustela Zibetha.—THE ZIBET.

Plate X. fig. 8.

Fur gray; legs transversely spotted with brown; throat white, with two black bands on each side; destitute of mane; tail long, with eight or ten rings of black and white.

Sub-Genus II.—GENETTA.—*Desmarest*.—Anal pouch reduced to a mere fold of the skin, containing very little secretion; tail straight; cheek teeth $\frac{6-6}{6-6}$.

Genetta Vulgaris.—THE GENET.

Plate XXIII. fig. 1.

Fur gray, with small, round, and elongated black spots; tail annulated with black. Inhabits Turkey and Syria.

Sub-Genus III.—PARADOXURUS.—Dentary formula and general shape the same as in the *Viverra*; destitute of the secretory pouch; plantigrade; tail as long as the body, flattened above and below, which the animal can roll up spirally.

Paradoxurus typus.—THE TYPE PARADOXURUS.

Plate XVII. fig. 4.

Fur grayish black with a tinge of yellow, with one broad dorsal, and two or three narrow indistinct black lines; under-jaw, legs, and tail, nearly black; under each eye a white spot. Inhabits India.

Genus 55.—SURICATA.—*Desmarest*.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-6}{6-6}$; total 40. Body elongated; feet with three toes, nails strong, formed for digging; ears small; tail long and slender; and with a pouch around the anus.

Suricata capensis.—THE SURIKATE.

Plate XVII. fig. 3.

Hairs annulated with brown, white, yellow, and black, forming a general shade of dull brown; nose round; eyes and ears black; under parts and tail yellowish; nails long, strong, and black.

DIVISION III.—Without a tuberculous tooth behind the great carnivorous tooth in the lower jaw.

Genus 56.—HYÆNA.—Cuvier.

Generic Character.—Incisive teeth $\frac{6}{6}$; canines $\frac{1-1}{1-1}$, very strong; grinders $\frac{5-5}{4-4}$; total 34. Three false grinders; one very large, strong, carnivorous tooth, with three cutting edges on the outer side, and a small tubercle within, with a little tuberculous tooth behind in the upper jaw; in the lower, three false molars; the carnivorous tooth bicuspid, without an inner tubercle, and no tuberculous tooth behind; jaws powerful, shorter than those of the dog, but longer than in the Felinæ; tongue aculeated; ears large; feet tetradactylous; nails not retractile; a glandular pouch at the anus; teats four.

Hyæna vulgaris.—THE STRIPED HYÆNA.

Plate XVI. fig. 1.

Fur dirty gray, or slate colour, with transverse darker stripes on the flanks and legs; a mane of stiff erect hairs down the ridge of the back. Inhabits Egypt, Barbary, Abyssinia, Syria, Nubia, and Persia.

Hyæna crocuta.—THE SPOTTED HYÆNA.

Plate XVI. fig. 2.

Fur dull whitish gray, or yellowish, with round brown spots on the flanks and thighs; mane extending to the loins. Inhabits Southern Africa.

Genus 57.—RATELUS.—Bennet.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{1-1}{1-1}$; total 32. Canines very thick, strong and triangular; in the upper jaw the cheek teeth consist of two false molars, with conical pointed crowns; one lacerator, and one tubercular, arranged exactly in the same manner as in cats; lower jaw, three false molars, anterior to the lacerator, and having no tubercle behind it; body thick, heavy, and depressed; legs short, stout; feet with five toes; claws arched and retractile, grooved on their under surface; no external ears; snout lengthened; muzzle naked: tongue aculeated.

Ratelus mellivorus.—THE RATEL.

Plate X. fig. 9.

Hair stiff and wiry; head, neck, back, and root of the tail, dull ash-gray, whiter towards the head; under parts, muzzle, contour of the eyes, and remainder of the tail, deep black. Size of a badger. Inhabits Africa and India.

Genus 58.—FELIS.—Linnaeus.

Generic Character.—Incisory teeth $\frac{6}{6}$, canines, $\frac{1-1}{1-1}$, grinders $\frac{4-4}{3-3}$ or $\frac{5-5}{5-5}$; total 28 or 30. Head round, jaws short, tongue aculeated; ears in general short and triangular, in many species with a white spot on the back of them; pupils of the eyes in some circular, in others vertically oval; fore feet with five toes; hind feet with four only, furnished with long, sharp, retractile claws, usually contained in sheaths.

* Without spots.

Felis leo. — THE LION.

Plate XIV. fig. 1.

LIONESS.

Plate XIV. fig. 2.

Fur tawny-colour; head large; neck furnished with a mane;

tail with a tuft at its extremity. About three feet and a half long. Inhabits Asia and Africa.

Felis concolor.—THE PUMA.

Plate XV. fig. 5.—fig. 4, a variety.

Fur uniformly yellow-fawn, without mane or tuft on the tail. Inhabits America.

**** Large, with transverse stripes.**

Felis tigris.—THE TIGER.

Plate XIV. fig. 3.

Fur deep fawn above; white in the under parts; body and legs with waved black transverse stripes, some of which are double; hair on cheeks very long. Body about five feet long. Inhabits Bengal and other parts of Asia.

***** Large, with round spots of black or brown.**

Felis pardus.—THE PANTHER.

Plate XV. fig. 1.

Fur pale fawn-colour above, with from six to seven rows of rose-formed black spots on each flank. Inhabits Africa.

Felis leopardus.—THE LEOPARD.

Plate XV. fig. 2.

Fur bright fawn-colour above, white underneath, with ten or more rows of clusters of black spots on each side; lower part of the tail, for about a third of its length, black above, white underneath; black part with three or four rings. Inhabits Africa.

Felis uncia.—THE OUNCE.

Plate XV. fig. 3.

Fur whitish-yellow, covered with irregular black spots; tail long for the size of the animal. Inhabits Persia, &c.

**** Middle-sized, generally covered with stripes and spots ; tail usually long.

Felis pardalis.—THE OCELOT.

Plate XV. fig. 7.

Fur grayish above, covered with oblong dark fawn-coloured patches, bordered with black ; white beneath, covered with spots of fawn, which extend to the feet. Inhabits Chili.

***** Middle-sized, legs long ; ears broad, long, and frequently tipped with a pencil of hairs ; three upper grinders not tuberculated.

Felis lynx.—THE LYNX.

Plate XV. fig. 10.

Fur reddish-yellow above, with small dark brown simple spots on the shoulders and flanks ; under parts yellowish-white ; tail short, black at the extremity. Inhabits Asia and Africa.

***** Small, ears not pencilled ; legs shorter than former division.

Felis serval.—THE SERVAL.

Plate XV. fig. 6.

Fur bright yellow-fawn above, thickly covered with round simple black spots ; tail short, spotted ; belly white. Inhabits Southern Africa.

Felis tigrina.—THE MARGAY.

Plate XV. fig. 8.

Fur on the upper parts of the body yellowish-gray ; four black lines pass from the vertex of the shoulders, where they change into a series of streaks ; under parts white ; tail irregularly annulated. Inhabits Brazil.

Felis catus.—THE DOMESTIC CAT.

Plate XV. fig. 9.

Fur generally whitish-gray above, with clouds and streaks; beneath white. Inhabits, in a wild state, the forests of Europe.

FAMILY IIII—AMPHIBIA.

Feet short, enveloped in the skin, shaped like fins, and adapted for swimming; hind ones horizontal. Incisory teeth variable; often four, and sometimes six, above, and from two to four in the under jaw.

Genus 59.—PHOCA.—*Linnæus*.

Generic Character.—The teeth of this genus vary much in the different species. The incisory teeth are $\frac{6}{4}$, or $\frac{6}{2}$, or $\frac{4}{4}$; differing also in form; canine teeth $\frac{1-1}{1-1}$, strong, conical, and slightly curved; grinders $\frac{5-5}{5-5}$, or $\frac{6-6}{5-5}$, or $\frac{6-6}{6-6}$; total 30, 34, 36, or 38. The grinders are all cutting or conical; the head round, snout elongated, with strong mustachios; the nostrils capable of being completely closed; eyes large; no external ears; feet with five toes; the anterior extremities having a fin-like hand, and the posterior feet only; the phalanxes of both enveloped in the skin; the tail short and thick; they have four abdominal teats.

In this genus, Cuvier seems to have paid little regard to external form, as in this respect the animals which he brings together are very different; taking the dentition alone for his character.

Sub-Genus I.—PHOCA.—*Peron*.—Without external ears; incisory teeth with a simple edge; grinders edged; toes of the hind feet terminated by pointed nails, placed on the border of the membrane.

Phoca vitulina.—THE COMMON SEAL.

Plate XVI. fig. 3

Fur yellowish-gray, more or less variegated and spotted with

brown, influenced by age; hair pretty long; nails thick, black, and strong; whiskers waved.

Sub-Genus II.—MIRUNGA.—Gray.—Cutting teeth $\frac{4}{2}$ or $\frac{6}{2}$; canines $\frac{1-1}{1}$; grinders short, broad, and roots simple; crown striated and nearly flat; no external ears; fur crowned on the nose, elongated into a trunk.

Phoca cristata.—CRESTED SEA-LION.

Top of the head furnished with a moveable hood, susceptible of erection, and covering the eyes and muzzle. From seven to eight feet long. Inhabits the Northern Seas.—Type of M. F. Cuvier's genus *Stematope*.

Sub-Genus III.—OTARIO.—Peron.—Cutting teeth $\frac{6}{4}$; canines $\frac{1-1}{1}$, large; grinders $\frac{6-6}{5-5}$; root simple; crown with a principal conical point, and one little lineal lobe before and another behind it; external ears distinct.

Phoca ursina.—THE SEA BEAR.

Plate XVI. fig. 4.

Fur dark blackish brown; males without a mane; hind feet furnished with long flaps of skin. Eight feet long. Inhabits Kamtschatka.—Type of M. F. Cuvier's genus *Arctocephale*.

Genus 60.—TRICHECUS.—Linnaeus.

Generic Character.—Incisory teeth $\frac{2}{0}$, canine teeth $\frac{1-1}{0-0}$, grinders $\frac{2-6}{5}$; total 24. The incisory teeth are small and deciduous; the superior canines or tusks, very large, somewhat longer than the head, compressed, and laterally arched; the grinders are of a cylindrical shape, with their upper surface obliquely truncated; the body is long and conical; the head round; muzzle large; without any external ears; tail short; fore feet paddle-shaped, armed with five short claws; hind feet horizontal, with five toes enveloped in the skin.

Trichecus rosmarus.—THE MORSE, OR WALRUS.

Plate XVI. fig. 5.

Lips very thick, beset with long strong ridged bristles; fur thin, short, reddish; two very large tusks, bent downwards and inflected. From sixteen to eighteen feet long. Inhabits the Northern Ocean.

ORDER V.—MARSUPIALIA.

In the sub-divisions of the different genera, the teeth vary considerably. The young are all produced prematurely, or in an early stage of developement, and become attached to the teats of the female, where they remain till they are fit to provide for themselves. The mammæ are situated in the abdominal region, usually within a pouch, or fold of the skin, which serves as a protection to the young. This pouch is supported by two marsupial bones: thumb of the posterior extremities mostly distinct and opposable to the fingers; it, however, is wanting in a few species.

Almost all the species are inhabitants of New Holland and South America.

DIVISION I.

Having canine and insectivorous cheek teeth or grinders.

Genus I.—DIDELPHIS.—*Linnaeus*.

Generic Character.—Incisory teeth $\frac{10}{3}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{7-7}$ or $\frac{6-6}{7-7}$; total 48 or 50. The two intermediate incisors in the upper jaw longer than the rest, and separated from them; they are very small and equal in the lower jaw; the canines are strong, compressed, and somewhat reflected; the three first grinders in the upper jaw are false teeth, small and triangular; the remainder are insectivorous, or furnished with sharp points; the four first in the under jaw are also false and small; and the

three others furnished with sharp tubercles; head long and conical, and the muzzle acute; ears large, rounded, and nearly naked; tongue aculeated. They are plantigrade in their locomotion; feet with five toes, with long and bent nails; thumbs of the hind feet long, opposable to the fingers, and without nails; tail long, half hairy and scaly; hair hard and close; stomach simple. Inhabits America.

* Females having an abdominal pouch.

Didelphis Virginiana.—THE VIRGINIAN OPOSSUM, OR SARAGOY.

Plate IX. fig. 8.

Fur with black and white bars, partly black and partly white; of a silky texture. Size of a rabbit. Inhabits the temperate parts of America.

** Females without an abdominal pouch.

Didelphis murina.—THE MURINE OPOSSUM.

Plate XVII. fig. 5.

Fur yellow-gray above, very pale yellow beneath; eyes surrounded with brown; tail as long as the body and naked. Inhabits Cayenne and Surinam.

Genus 2.—CHIRONECTES.—*Illiger*.

Generic Character.—Incisors $\frac{10}{8}$, canines $\frac{1-1}{1-1}$, the number of grinders unknown; cheek teeth pointed and cutting; ears naked; feet round, with five toes; nails sharp and bent; the posterior feet plantigrade and palmated; thumb without a nail; tail long, cylindrical, prehensile, naked and covered with scales. Female with an abdominal pouch.

Chironectes palmata.—THE YAPOCK.

Plate XVII. fig. 6.

Fur brown above, with three transverse gray patches or

bands; white underneath. Inhabits the banks of the rivers Yapock and Guyane.

Genus 3.—DASYURUS.—Geoffroy.

Generic Character.—Incisory teeth $\frac{8}{6}$, canines $\frac{1-1}{1}$, grinders $\frac{6-6}{6-6}$; total 42. The incisors are small and regular; canines large; the two first grinders cutting, the others with points on their crowns; head conical and elongated; fore feet with five toes on each, furnished with crooked nails; hind feet with four toes and nails; thumb very short, distant from the fingers, and without a nail; tail long, covered all over with hairs; females with a marsupial pouch.

Dasyurus macrourus.—THE SPOTTED DASYURUS.

Plate IX. fig. 9.

Fur bright chestnut-coloured, irregularly spotted with white; hairs on tail long and spotted. Size of a cat. Inhabits New Holland.

Genus 4.—GYMNURA.—Raffles.

Generic Character.—Incisory teeth $\frac{2}{6}$, canines $\frac{1-1}{1}$, molars $\frac{8}{7}$; total 26. The incisive teeth large, sub-cylindric and remote, short and compressed; upper canines remote, short, and conical; the inferior one large, conical, and subarcuated; molars remote, with one elongated tubercle; second molar short; next four cuspid, conical, and elongated; lower molars with one tubercle; first and second short, third sub-elongated, the fourth tuberculated and elongated, fifth gradually shortening, and sixth and seventh large, with acute tubercles; head elongated, laterally compressed; muzzle much produced, the upper jaw being considerably longer than the under; ears round, prominent, and naked; eyes small; whiskers very long; tongue smooth; body rather robust; tail long, naked, and scaly; feet with five toes, furnished with strong hooked nails, which are retractile; the three centre toes longer than the others; hind legs very long, fore legs short.

Gymnura Rafflesii.—RAFFLES'S GYMNURA.

Plate VIII. fig. 6.

Body robust; head large; muzzle much elongated; hair on the whole body setose, mingled with soft fur; tail naked; claws retractile. Length of body upwards of fourteen inches; tail ten inches and a quarter. Inhabits Sumatra.

Genus 5.—PARAMELES.—Geoffroy.

Generic Character.—Incisory teeth $\frac{10}{6}$ or $\frac{10}{8}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{7-7}$, or $\frac{8-8}{6-6}$; total 50. The last incisors on each side of the upper jaw very long; those of the lower divided by a groove; canine teeth long; grinders acutely tubercular; head very long; fore feet with five distinct toes, the three middle longest, and the thumb merely rudimentary; hind feet longer than the fore, and having four toes only, two of which are internal, very small, united and enveloped in the skin, the claws only being seen; the third very long, with a strong claw, and the outer one very small; tail long and pointed, thick at the base and naked beneath; not prehensile.

Parameles nasuta.—THE LONG-NOSED POUCHED PARAMELES.

Plate XIX. fig. 1.

Fur grayish-brown above, and white beneath; head long; muzzle slender and produced. Cutting teeth $\frac{10}{6}$. Inhabits New Holland.

Division II.—Cutting teeth $\frac{6}{2}$, the lower very long; in the under jaw the canines are very small, and in some none.

Genus 6.—PHALANGISTA.—Geoffroy.

Generic Character.—Incisors $\frac{6}{2}$, canines $\frac{1-1}{0-0}$, or none, false grinders $\frac{2-2}{2-2}$, or $\frac{2-2}{2-2}$, grinders $\frac{5-5}{5-5}$, or $\frac{6-6}{5-5}$; total 38 or 40. Fore-head convex; snout elongated; feet with five toes, not united to the body by the skin of the sides; anterior toes separate, furnished with strong crooked nails; hind feet, with a large thumb

without a nail ; tail naked in some, and in others covered with hair. Females with an abdominal pouch.

SUB-DIVISION I.—Tail naked or scaly and prehensile.

Phalangista rufa.—THE RED PHALANGER.

Plate XVII. fig. 7.

Fur reddish chestnut, with a darker dorsal line.

SUB-DIVISION II.—Tail hairy and prehensile.

Phalangista Cookii.—COOK'S PHALANGER.

Plate XVII. fig. 8.

Fur brown or reddish-gray above ; white beneath ; tail brown next the base, and white towards the point. Size of a Polecat. Inhabits Van Dieman's Land.

Genus 7.—PETAURISTA.—Cuvier.

Generic Character.—Incisors $\frac{6}{6}$, canines $\frac{1-1}{0-0}$ or $\frac{1-1}{2-2}$, grinders $\frac{6-6}{6-6}$ or $\frac{7-7}{6-6}$; total 32 or 34. The lower incisors are horizontal ; head somewhat elongated ; eyes small ; ears long ; feet short, with five toes ; the posterior with a large thumb, without a nail ; the two first toes short, united by a common skin ; claws compressed and arched ; skin of the sides extending and uniting the extremities, so as to form a kind of parachute ; tail long, hairy, and not prehensile.

SUB-DIVISION I.—Tail round.

Petaurista taguanoides.—THE FLYING PETAURISTA.

Plate IX. fig. 10.

Fur gray-brown, soft and shining above ; throat and chest white ; tail yellowish-brown at the base, darker towards the tip. Inhabits New Holland, at Port-Jackson.

SUB-DIVISION II.—Tail villous.

Petaurista pigmæa.—THE PIGMY PETAURISTA.

Plate XVII. fig. 10.

Fur uniform mouse-gray, somewhat reddish on the back, and white underneath. Inhabits New Holland.

DIVISION III.—Incisory teeth $\frac{6}{2}$, the lower ones very long and oblique; canines $\frac{0-0}{1-1}$.

Genus 8.—POTOROUS.—*Desmarest*.

Generic Character.—Incisors $\frac{6}{2}$, canines $\frac{1-1}{0-0}$, grinders $\frac{5-5}{5-5}$; total 30. The canines are small, the four posterior grinders in both jaws having blunted tubercles; head long; muzzle acute; upper lip cleft; ears large; fore legs short; feet with five toes; claws sharp; hind feet long, with four toes, two of which are united and small; tail long, thick; hair woolly. Female with an abdominal pouch.

Potorous marinus.—THE KANGAROO RAT.

Plate XIX. fig. 2.

Fur brownish above, and gray beneath; ears rather large and rounded. Size of a Rabbit. Inhabits New Holland.

Genus 9.—KANGURUS.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{6}{2}$, no canine teeth, grinders $\frac{5-5}{5-5}$; total 28. The head elongated; ears large and pointed; eyes large; fore legs very short, with five toes on the feet, which have strong claws; hind legs very strong and long, having only four toes, the two inner small and united; the central ones very large, long, and strongly clawed; the outer toe moderate; the metatarsus very long and thin; the soles of the feet applied their whole length to the earth; tail long, very thick at the base, tapering and very strong, but not prehensile; is used to assist the animal in leaping. Female furnished with an abdominal pouch, in which the teats are situated.

Kangurus labiatus.—THE GREAT KANGAROO.

Plate IX. fig. 11.

Fur ash-gray above, white beneath; with an ash-gray line across the chin; legs and upper part of the tail blackish. Measures six feet from the nose to the tip of the tail. Inhabits New Holland.

Genus 10.—PHASCOLARCTOS.—*Blainville*.

Generic Character.—Incisory teeth $\frac{6}{2}$, false grinders, $\frac{2-2}{0-0}$, true grinders $\frac{4-4}{4-4}$; total 28: with four intermediate teeth between the incisors and the upper grinders; molars with four tubercles; ears large and pointed; feet with five toes; the fore feet parted into two groups; the thumb and index finger on one side, the three others on the opposite; hind feet with a large distinct clawless thumb; and the two inner fingers small, united to the claws.

Phascolarctos fuscus.—THE KOALA.

Plate XVII. fig. 9.

Fur long, thick, and harsh, of an uniform chocolate-brown. Size of a moderate dog. Inhabits New Holland.

DIVISION IV.—Incisory teeth $\frac{2}{2}$, without canine teeth.

Genus 11.—PHASCOLOMYS.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{2}{2}$, no canine teeth, grinders $\frac{5-5}{5-5}$; total 24. Cutting teeth very strong, thick, and short, the upper ones converging at their tips; grinders separated from the incisors by a vacant space; crowns oval, flat, separated into two by a groove; body thick; head large, flat; ears short; feet with five toes; claws of the fore feet strong; thumbs of the hind feet small, indistinct, and without claws; tail short, scarcely visible. Female with an abdominal pouch.

Phascalomys wombat.—THE WOMBAT.

Plate XIX. fig. 3.

Fur uniform grayish; eyes small. Size of a badger. Inhabits New Holland.

ORDER VI.—RODENTIA.—CUVIER.

GLIRES.—*Linnæus*.

Two large incisors in each jaw, separated from the grinders by a vacant space; destitute of canine teeth; grinders in some of the genera with flat or ridged crowns, in others with blunt tubercles. Under jaw articulated by a longitudinal condyle; orbits not separated from the temporal fossæ, having a small zygomatic arch; toes variable; nails unguiculated; stomach simple; intestines long; cæcum large; mammæ varying in number. Feed generally on vegetables, but the species with tuberculated grinders are nearly omnivorous. Their habits are various, but generally timid. Inhabit the Continents and larger Islands.

SECTION I.—With perfect clavicles.

Genus 1.—CASTOR.—*Linnæus*.

Generic Character.—Incisive teeth $\frac{2}{2}$, no canines, grinders $\frac{14}{14}$; total 20. Incisive teeth very strong, with a flat anterior surface, and the posterior angular. The grinders have a fold, or ridge of enamel, on the internal edge, and three similar folds on the outer edge of the upper teeth, which are inverted in the lower ones; eyes small; ears short and round; each of the feet have five toes; the anterior short and close, and the posterior longer and palmated; tail large, flat, and scaly; near the root of the tail in the male, is a pouch filled with an unctuous secretion.

Castor fiber.—THE BEAVER.

Plate XVIII. fig. 1.

Fur an uniform reddish-brown, consisting of two sorts; one coarse and brownish, the other fine and downy, of a gray colour. About two feet long. Inhabits North America and Europe.

Genus 2.—FIBER.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{5-5}{5-5}$; total 16. Lower incisors sharp-pointed, and convex in front; grinders with flat crowns, furnished with scaly transverse zigzag laminae; fore feet with four toes, and the rudiments of a thumb; hind feet with five toes, having the edges furnished with stiff hairs, used in swimming like the membrane of palmated feet; tail long, compressed laterally; both sexes secrete an odoriferous musky unguent.

Fiber Zibethicus.—THE MUSK RAT, OR ONDATRA.

Plate XVIII. fig. 2.

Fur reddish-gray above, ash-coloured beneath. About the size of a rabbit. Inhabits Canada, and other parts of North America.

Genus 3.—ARVICOLA.—Desmarest.

Generic Character.—Incisive teeth $\frac{2}{2}$, no canines, grinders $\frac{5-5}{5-5}$; total 16. Grinders are flat on the crowns, with angular plates of enamel; ears large; anterior toes with nails; tail round, covered with hair, and almost as long as the body.

Arvicola amphibius.—THE WATER RAT.

Plate XIX. fig. 4.

Fur blackish gray, slightly tinged with yellow above, lighter underneath; tail black. Somewhat larger than the common Norway rat. Inhabits Europe, Northern Asia, and North America.

One variety of this species is entirely black, another with a white spot on the shoulders, and a third black with white feet.

Genus 4.—ISODON.—Say.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-4}$; total 20. Grinders converging, with flat crowns not divided into radicles; the incisory teeth not narrowed at the top, but obtusely rounded; fore feet four-toed, with a small tubercle in place of a thumb; hind feet four-toed; the toes in all the feet divided, and rest equally on the sole in walking.

Isodon pilorides.—Known only from the skeleton.

Genus 5.—NEOTOMA—Say and Ord.

Generic Character.—Incisors $\frac{2}{2}$, molars $\frac{6-6}{6-6}$; total 16. The incisors in the upper jaw slightly rounded on their anterior face; molars with profound radicles; first molar with five triangles, one of which is anterior, two exterior, and two interior; second molar with four triangles, one anterior, two on the exterior side, and a very small one on the interior side; third molar with four triangles, one anterior, two exterior, and a minute interior one; fore feet four-toed, with an armed rudiment of a fifth toe; hind feet five-toed.

Neotoma Floridana.—THE FLORIDA NEOTOMA.

Plate VIII. fig. 5.

Fur extremely fine, on the upper part of the body lead coloured, intermixed with yellow and black hairs; border of the abdomen and throat buff colour; snout elongated; whiskers very long; eyes and ears very large; tail longer than the body, white beneath, dusky above, its scales so small as to be covered with the hair. Length of the body seven inches and a half; tail six inches and a quarter. Inhabits East Florida.

Genus 6.—SIGMADON.—Say and Ord.

Generic Character.—Incisors $\frac{2}{2}$, molars $\frac{6-6}{6-6}$; total 16. Molars

in each jaw with very profound radicles towards the summit, composed of alternate folds, two on each side, extend to the middle of the teeth; the incisors in the upper jaw slightly rounded, in the inferior jaw obliquely truncate; tail hairy; feet simple; fore feet four-toed, with the rudiment of a fifth toe having a nail; hind feet five-toed.

Sigmadon hispidum.—THE PRICKLY SIGMADON.

Zoological Journal, vol. II. plate X. fig. 5, 6, 7, 8.

Head thick; snout elongated; eyes and ears large, the latter round, slightly clothed with hair; tail nearly as long as the body; fore legs short; hind feet large and strong; lateral toes very short; claws stout; upper parts and head pale dirty ochre yellow, mixed with black; lower parts ash-coloured; hair of the upper parts and sides long, plentiful, and coarse. Length from the tip of the snout to the tail six inches; tail four inches. Inhabits the banks of the river St John in East Florida.

Genus 7.—LEMMUS.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{5-5}{3-3}$; total 16. Grinders with a flat crown and angular plates of enamel; ears very short; fore feet in some species have five and in others four toes, with nails on all of them fitted for digging; tail short, covered with hair.

Lemmus Norvegicus.—THE LEMMING, OR LAPLAND MARMOT.

Plate XVIII. fig. 9.

Fur reddish-yellow, or tawny. clouded, or irregularly spotted with black; fore feet with five toes; thumb nail large and strong. Length of the body five to six inches; tail about half an inch. Inhabits Norway and Lapland.

There is a variety a fourth less in size, with a light band passing from the nose to the ear.

Genus 8.—ECHIMYS.—Geoffroy.

Generic Character.—Incisive teeth $\frac{2}{2}$, no canines, grinders $\frac{4-4}{1-1}$;

total 20. Head long; eyes large; ears shortish; no cheek pouches; fore feet with four toes, and the rudiment of a thumb; hind feet with five toes; tail long and generally scaly; back covered with shortish flat spines, more or less abundant.

Echimys hispidus.—THE ROUGH-HAIRED ECHIMYS.

Plate XIX. fig. 5.

Fur brownish-red above, and lighter underneath; head reddish; tail as long as the body, scaly; hairs of the back very rough. From seven to eight inches long. Inhabits South America.

Genus 9.—MYOXUS.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, canines none, grinders $\frac{4-1}{4-1}$; total 20. The grinders are divided by transverse bands; eyes large and prominent; ears large and round; with long mustachios; no cheek pouches; fore feet with four toes, and the vestige of a thumb; hind feet with five toes; tail long, more or less villose, and tufted in some species; fur soft. No cæcum or large intestines.

Myoxus avellanarius.—THE COMMON DORMOUSE.

Plate XIX. fig. 6.

Fur brownish-yellow above, white underneath; hairs of the tail disposed like a feather; tail as long as the body, and flattened horizontally. Inhabits England and various places of Europe.

Genus 10.—HYDROMYS.—Geoffroy.

Generic Character.—Incisors $\frac{2}{2}$, no canine teeth, grinders $\frac{2-2}{2-2}$; total 12. Crowns of the grinders flat, provided with enamelled ridges in the shape of the figure 8, with two excavations corresponding with the hollow spaces in that figure; ears small and round; five toes on all the feet, but the thumb on the fore feet very small; hind feet palmated and united by a membrane; tail

as long as the body, cylindrical, but pointed at the end, and covered with thick hair.

Hydromys Coypus.—THE COYPOU.

Plate XIX. fig. 7.

Fur soft and downy, dark chestnut-brown on the back, red on the flanks, and light-brown on the belly. About two feet long; tail eighteen inches; hair rather hard.

Genus 11.—MUS.—Linnaeus.

Generic Character.—Incisors $\frac{2}{2}$, no canine teeth, grinders $\frac{5-5}{5-5}$; total 16. The grinders are furnished with tubercles; ears oblong or round, nearly naked; without cheek pouches; fore feet with four toes, and a wart in place of a thumb, covered with an obtuse nail; hind feet with five toes; nails long, sharp, and incurved; tail long, naked, and scaly; fur smooth, with a few scattered hairs extending beyond the rest, which in some species are spinous.

SUB-DIVISION I.—Spineless Rats of the Old Continent.

Mus decumanus.—THE NORWAY RAT.

Plate XVIII. fig. 3.

Fur gray-brown above, and grayish-white beneath; tail nearly the length of the body; feet of a dirty skin-colour, but not webbed. Body nine inches long. Original habitation Persia, but has now spread all over the world. It is the common brown rat of Britain.

Mus pumilio.—THE LINIATED MOUSE.

Plate XVIII. fig. 5.

Fur ash-coloured brown above, lighter beneath, with four longitudinal black lines on the ridge of the back; tail nearly naked, of middling length. Little more than two inches long from the nose to the tail. Inhabits the forests on the Slangen River, eastward of the Cape of Good Hope.

Mus musculus.—THE COMMON MOUSE.

Plate XVIII. fig. 4.

Fur dusky-gray above, ash-coloured beneath ; body four inches long ; tail about the same length. A variety is found pure white, with red eyes. Inhabits Europe and British Islands.

SUB DIVISION II.—American Spineless Rats.

Mus rufus.—THE RED RAT.

Fur yellowish-red ; darker on the head and back ; belly yellowish ; tail more than half as long as the body. About six inches long. Inhabits Paraguay.

SUB-DIVISION III.—Spinous Rats.

Mus perchal.—THE PERCHAL RAT.

Plate XIX. fig. 9.

Fur reddish-brown above, with spiny hairs intermixed ; grayish underneath ; tail not quite so long as the body. Body eighteen inches long. Inhabits the town and neighbourhood of Pondicherry, in India.

Genus 12.—CRICETUS.—*Lacpede*.

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{5-5}{5-5}$; total 16. Surface of the grinders with blunt tubercles ; head thick ; ears oval and round ; with cheek pouches ; fore feet with four toes, and a rudimentary thumb ; hind feet with five toes, and strong nails ; tail short and hairy.

Cricetus vulgaris.—THE COMMON HAMSTER.

Plate XIX. fig. 10.

Fur grayish-fawn colour above, black underneath, with three large yellowish spots on each side, and one white spot on the throat and another under the chest. Somewhat larger than the common rat. Inhabits the northern parts of Europe and Asia.

There is a black variety, with a little white round the mouth, on the nose, edge of the ears, feet, and extremity of the tail.

Genus 13.—DIPUS.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{5-3}{5-3}$ or $\frac{4-4}{4-4}$; total 16 or 18. Lower incisory teeth sharp pointed; grinders simple, with tuberculous crowns; eyes large; ears long and pointed; fore feet short, with four toes, and a tubercle in place of a thumb, which is furnished with a nail; the hind feet are five or six times longer than those before, with three or five toes, having one metatarsus for the three middle toes; tail very long, generally tufted.

Dipus sigitta.—THE COMMON JERBOA.

Plate XVIII. fig. 6.

Fur bright yellow above, white underneath; with a dusky, semilunar band across the upper part of the rump; tail longer than the body, with an oblong dusky tuft at its extremity; white at the tip. Body about six inches. Inhabits Barbary, Egypt, and Western Asia.

Genus 14.—GERBILLUS.—Desmarest.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{5-5}{5-5}$; total 16. Grinders tuberculous; the first with three, the second with two, and the third with one tubercle; ears moderately sized; fore feet short, with four toes, and a rudimentary thumb; the hind legs very long, having five toes with nails; each foot with a proper metatarsal bone; tail long, covered with hair.

Gerbillus Canadensis.—THE CANADA GERBIL.

Plate XIX. fig. 11.

Fur yellowish above, white underneath; ears short; tail with hardly any hair, somewhat longer than the body; without any tuft. Inhabits Canada, in the neighbourhood of Quebec.

Genus 15.—ASPALAX.—Desmarest.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{3-5}{3-3}$; total 16. Incisory teeth large; square at top and bottom; those in the under jaw twice the length of the upper ones; grinders with tuberculous crowns; body long, cylindrical; eyes very small, concealed by the skin; no external ears; feet short, with five toes; tail naked; fur short and soft.

Aspalax typhlus.—THE SPALAX.

Plate XXI. fig. 1.

Fur blackish ash colour at the base, reddish towards the point; head large and thick; the whole animal cylindrical; eyes concealed by the fur. About eight inches long. Inhabits Asia Minor, Syria, Mesopotamia, Persia, and Southern Russia. This is the mole of the ancients. There is a variety with irregular white spots.

Genus 16.—BATHYERGUS.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{4-4}{5-5}$; total 20 or 16. Incisory teeth very long, large, and square; grinders slightly tuberculous, indented on the edges; body thick and cylindrical; head thick; muzzle truncated; eyes small; no external ears; feet short, with five toes on each; nails formed for digging; tail very short.

Bathyergus maritimus.—COAST BATHYERGUS.

Plate XXI. fig. 2.

Fur whitish-gray; tail flat, covered with rough hairs; body above a foot long; tail about three inches. Inhabits the Cape of Good Hope.

Genus 17.—PEDETES.—Desmarest.—

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-4}$; total 20. Lower incisory teeth cut obliquely, and not pointed; grinders formed of two elliptical parts, united at their external

extremity, and separated above by a deep furrow; head short, large, and flat; muzzle obtuse, terminated by small nostrils set at right angles; ears long, narrow, and pointed; eyes large; no cheek pouches; whiskers large; fore feet with four toes, having long, narrow, digging nails; hind feet with four toes, the external ones very small, the intermediate of the other three much the longest, the rest being equal, all furnished with thick strong nails; tail long and thick. The females have an abdominal pouch, which does not inclose the teats.

Pedetes Capensis.—THE CAPE PEDETES.

Plate XXI. fig. 3.

Fur bright, fulvous, varied with black above, white underneath; with a line of the same colour in the folds of the arms; legs brown; tail thin, reddish above, near the insertion, gray below, and black at the end. Inhabits the Cape of Good Hope.

Genus 18.—ARCTOMYS.—*Geoffroy*.

Generic Character.—Incisory teeth $\frac{5}{5}$, no canines, grinders $\frac{5-5}{5-5}$, total 22. Incisors very strong; anterior surface rounded; upper surface of the grinders furnished with ridges and tubercles; head large; eyes large; ears short; body thick and heavy; paws strong; fore feet with four toes, and a rudimentary thumb; the hind feet with five toes; nails strong and compressed; tail generally short.

SUB-DIVISION I.—ARCTOMYS.—*M. F. Cuvier*.—Without cheek pouches. Habits social.

Arctomys marmotta.—THE ALPINE MARMOT.

Plate XVIII. fig. 7.

Fur yellowish-gray; ash-coloured on the head; top of the head and end of the tail black; under parts yellowish-white. About eighteen inches long. Inhabits the Alps and Pyrenees.

Arctomys empetra.—THE QUEBEC MARMOT.

Plate XVIII. fig. 8.

Fur blackish-brown, dotted with white above and red underneath; tail short, and black at the end. Inhabits Canada.

SUB-DIVISION II.—SPERMOPHILUS.—*M. F. Cuvier*.—With large cheek pouches. Habit solitary.

Arctomys Franklinii.—FRANKLIN'S MARMOT.

Plate XXI. fig. 4.

Fur fuscous and variegated; head broad; snout very blunt, ears small; tail elongated. Inhabits Canada.

Genus 19.—CAPROMYS.—*Desmarest*.

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{5-5}{4-4}$; total 22. Upper incisors not very strong, transversely truncated at the extremity, and not furrowed on the anterior surface; the lower ones slightly tubulate, and very similar to the upper; head long, laterally compressed; tip of the snout truncated; ears large, erect, and lateral; body bulky; fore legs short; feet with four toes; hind legs long; teats four, two pectoral and two abdominal.

Capromys Fournieri.—THE UTIA, OR FOURNIER'S CAPROMYS.

Plate XIX. fig. 8.

Fur rough, brown on the back of the neck, back, flanks and exterior surface of the limbs; each hair has a ring of yellowish colour towards the extremity; fore head, chin, and under part of the neck gray; rump reddish brown; belly brownish-gray; upper parts of the toes covered with scales, interspersed with hairs; neck short; tail naked, with about one hundred and fifty scaly rings; eyes situated near the line of the forehead. Size of a large rat. Inhabits the Island of Cuba.

Genus 20.—SCIURUS.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{5-6}{4-1}$; total 22. The upper incisory teeth are flat in front, and wedge-shaped at the extremity; the lower pointed and compressed laterally; grinders tubercular; head small; ears erect; eyes large; body small, elongated; anterior feet with four long toes, and a tubercle instead of a thumb; the hind feet with five long toes, all furnished with long crooked nails; tail long, frequently very villose; two pectoral teats and six ventral.

• Tail distichous.

Sciurus vulgaris.—THE COMMON SQUIRREL.

Plate XVIII. fig. 11.

Fur reddish-yellow above, white beneath; ears erect, pencilled with long hairs.

Sciurus Clarkii.—CLARK'S SQUIRREL.

Plate XXI. fig. 5.

Fur silvery-gray above; shoulders, flanks, and belly, white, with an ochry tint; tail flat, terminating in a point. Inhabits North America.

** Tail round, distichous only at the extremity.

Sciurus aestuans.—THE GUERLINGUET SQUIRREL.

Plate XXIII. fig. 23

Fur olive-gray, mixed with red above, pale red underneath; tail round, longer than the body.

*** Having cheek pouches, tail distichous.

Sciurus striatus.—THE STRIATED SQUIRREL.

Plate XXIII. fig. 2.

Fur light brown above, with five longitudinal brown stripes,

and two white ones; belly cream-coloured white; tail grayish-black above, chestnut, margined with black, beneath. Inhabits Southern Asia.

Genus 21.—PTEROMYS.—Cuvier.

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{5-5}{4-4}$; total 22. Head round; ears short and rounded; eyes large; fore feet with four elongated toes, furnished with sharp nails, and a rudimentary thumb, having an obtuse nail; hind feet with five long toes, much divided, and adapted for seizing; tail long, villose; skin of the sides extended from the anterior to the posterior extremities, forming a kind of parachute.

* With the tail round, and hairs not distichous.

Pteromys petaurista.—THE SAILING PETAURISTA.

Plate XXI. fig. 6.

Fur chestnut colour, the hairs being tipped with white on the shoulders; whitish-gray underneath; thighs red; feet brown; tail blackish, and cylindrical. Inhabits India and the Islands.

** With the tail depressed, and the hairs distichous.

Pteromys Sibericus.—SIBERIAN PTEROMYS.

Plate XVIII. fig. 12.

Fur ash-gray above, white underneath; tail half the length of the body. About seven inches long. Inhabits Siberia, Finland, and Lapland.—This is the type of M. F. Cuvier's genus *Sciuropterus*.

SECTION II.—With imperfect clavicles, or none.

Genus 22.—HYSTRIX.—Linnaeus.

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-1}$; total 20. The grinders have flat tops, but furnished with ridges of enamel. Head strong, convex; muzzle thick; ears short and

rounded ; tongue furnished with spiny scales ; fore feet with four toes, and the rudiment of a thumb ; hind feet with five toes ; the nails on all the feet are strong ; body covered with spines, intermixed with strong hair ; tail more or less long, sometimes prehensile.

M. F. Cuvier has divided this genus into five distinct genera.

Hystrix cristata.—THE CRESTED PORCUPINE.

Plate XX. fig. 1.

With very long spines on the back, which are annulated, black and white ; with a mane of long stiff hairs on the head and neck ; tail short. Length of the body upwards of two feet ; tail about three inches long. Inhabits Africa.

Hystrix Cuandu.—THE BRAZILIAN PORCUPINE.

Plate XX. fig. 2.

The body is covered with short spines, annulated, black and white, destitute of any mixture of hair on the upper part ; tail two-thirds the length of the body, tapering, and prehensile. Inhabits South America.

This is the type of M. F. Cuvier's genus *Sinathere*.

Genus 23.—ATHERURA.—Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{1}{1}$ —4 ; total 20. Head strong, forehead depressed, nearly straight from the occiput to the extremity of the nose ; ears short, rounded ; fore feet with four toes, and a rudimentary thumb ; hind feet with five toes ; nails strong ; tail one-third the length of the body, covered throughout with scales, disposed in rings, tip surmounted by a tuft of long flat bristles.

Atherura fasciculata.—THE FASCICULATED PORCUPINE.

Plate XXI. fig. 7.

Upper parts of the body, outer sides of the limbs, head, neck, and face, dusky ; under parts, and insides of the limbs, grayish-white, with a darker band crossing the breast, in front of the

fore legs; covered with spines from the back of the head to the root of the tail; white at their base, and black towards their extremity; the upper surface of each with a deep groove: whiskers very long. Length of the body one foot; tail five inches. Inhabits the Island of Fernando Po.

Genus 24.—CHINCHILLA.—*Bennet.*

Generic Character.—Incisory teeth $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-4}$; total 20. The three anterior grinders of the upper jaw formed of three parallel bony portions, the third separated from the rest by a deep groove, with three alternating lines of enamel, and the fourth having an additional portion of bone and enamel; head round, eyes large; ears very large, broad, and rounded; fore feet with four toes, and a rudimentary thumb; hind feet also with four toes, three of them long, the middle more produced than the two lateral ones, the fourth, or external toe, very short, and placed far behind; claws short, and nearly hidden by tufts of hairs; tail half the length of the body, usually turned upwards.

Chinchilla lanigera.—THE CHINCHILLA.

Plate XXI. fig. 10.

Fur ash-gray and white, and exceedingly soft; ears large, being nearly as long as the head; eyes large and black; moustaches plentiful, and very long, the longest being twice the length of the head, some of which are black and others white. Length of the body nine inches, and tail five. Sits usually upon its haunches, the fore legs being shorter than the hind ones. Inhabits Chili and Peru.

Genus 25.—LEPUS.—*Linnaeus.*

Generic Character.—Incisory teeth $\frac{1}{1}$, no canines, grinders $\frac{6-6}{5-5}$; total 24. The upper incisory teeth are placed in pairs, two wedge-shaped, with a longitudinal furrow in front, and two smaller ones immediately behind; the under incisory teeth square; grinders with flat crowns and transverse laminae of enamel; ears and eyes large; fore feet with five toes, and the

hind feet four, with slightly arched nails ; all the feet are covered with hair ; tail short, erect ; teats from six to ten ; the cæcum is very large.

Lepus timidus.—THE HARE.

Plate XX. fig. 3.

Fur brownish-red and gray mixed ; chin and belly white ; ears black at the tips ; tail black above and white underneath. About two feet in length. Inhabits Europe, and the northern and temperate parts of the old world.

Lepus cuniculus.—THE RABBIT.

Plate XX. fig. 4.

Domestic variety. Fur white, variously clouded with black, brown, fawn-colour, or gray. The wild variety is gray and yellow mixed ; reddish-brown about the neck, throat, and belly ; tail brown above and white underneath. About sixteen inches long. Its original country supposed to be Africa ; now spread over most parts of the world.

Genus 26.—LAGOMYS.—*Geoffroy*.

Generic Character.—Incisors $\frac{4}{2}$, no canines, grinders $\frac{6-6}{3-3}$; total 28. The teeth and toes are similar to those of the *Lepus* ; eyes moderately sized ; ears rather short and rounded ; hind legs about the same length as the fore ones ; soles of feet with fur ; without any tail ; mammae four or six ; clavicles nearly perfect.

Lagomys Alpinus.—THE PIKA OR ALPINE HARE.

Plate XXI. fig. 8.

Fur reddish-yellow ; ears and soles of the feet dark brown. About ten inches long. Inhabits the mountains of the old world.

Genus 27.—HYDROCHÆRUS.—*Cuvier*.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{1-1}{1-1}$, total 22. The incisory teeth without longitudinal furrow ; the

lower compressed and sharp; the grinders are laminous; muzzle compressed; eyes large; ears moderate and rounded; fore feet palmated with four toes; posterior with three; without any tail; two teats; hair scattered and bristly.

Hydrochærus capybara.—THE CAPYBARA.

Plate XXI. fig. 9.

Fur brown; head very large; nose broad, divided; nostrils distant; whiskers very long; neck very short; body short and thick; legs strong and short; feet large. About three feet long. Inhabits the banks of the larger rivers in South America.

Genus 28.—CAVIA.—*Desmarest*.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-4}$; total 20. Body thick; muzzle short, compressed; eyes large; ears round; legs short; four toes on the fore feet, and three on the hind feet; not palmated; without a tail; teats two, ventral.

Cavia Cobaya.—THE COBAYA, OR GUINEA FIG.

Plate XX. fig. 5.

Fur short, reddish-gray on the upper parts, paler beneath. Tame variety varied, with patches of black, fawn-colour, and white; legs very short. Inhabits Brazil and Paraguay.

Genus 29.—DASYPROCTA.—*Illiger*.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{4-4}{4-4}$; total 20. Head somewhat elongated; forehead flat; eyes large; muzzle thick; fore feet with four toes, and a tubercle in place of a thumb; hind feet longer than those before, with three toes, and long strong nails; soles of the feet devoid of hair, and callous.

Dasyprocta Acuti.—THE AGOUTI.

Plate XX. fig. 7.

Fur brown, sprinkled with straw-colour, and reddish, orange

on the crupper; ears short; tail merely rudimentary. Body about two feet long. Inhabits South America.

Genus 30.—CÆLOGENUS.—F. Cuvier.

Generic Character.—Incisors $\frac{2}{2}$, no canines, grinders $\frac{1-1}{1-1}$; total 20. Head obtuse, with cheek pouches; with five toes on all the feet; interior and exterior toes very short; nails strong, conical, and formed for digging; no tail, but in its stead, a naked tubercle; teats four, two pectoral and two inguinal.

Cælogenus Sub-Niger.—THE BROWN PACA.

Plate XX. fig. 6.

Fur dark yellowish-brown above, paler on the sides, belly dirty white; sides spotted with white. Nearly two feet long. Inhabits South America.

ORDER VII.—EDENTATA.

No incisory teeth in either jaw; some genera have canines, but others have grinders alone; various genera are toothless; toes varying in number, and generally furnished with large nails; orbits of the skull and temporal fossæ united.

The food of this order is various. Some of the genera feed on vegetable substances; while others live on flesh and insects. Their habits are also various; but they are in general more or less inactive.

TRIBE I.—TARDIGRADA.

The face is short; having grinders and canine teeth, or grinders only; feet furnished with long and bent nails.

Genus 1.—BRADYPUS.—Linnaeus.

Generic Character.—No incisory teeth, canines $\frac{1-1}{1-1}$, grinders $\frac{1-1}{1-1}$; total 18. Canines larger than the grinders, pyramidal.

and pointed; grinders cylindrical; head small, muzzle truncated, neck short; nostrils at the extremity of the muzzle; fore legs longer than the hind ones, with two or three toes furnished with strong nails; fur thick, harsh, and long; intestines short; no cæcum; stomach membranous.

Bradypus tridactylus.—THE THREE-TOED SLOTH.

Plate XX. fig. 8.

Fur gray, coarse, usually spotted on the back with brown or white; all the feet with three long curved nails; soles of the feet covered with hair. Size of a fox. Inhabits South America.

This is the type of F. Cuvier's genus *Acheus*.

Genus 2.—MEGATHERIUM.—Cuvier.

Fossil.

Generic Character.—No incisors or canine teeth, grinders $\frac{4-4}{4-1}$; total 16.

Megatherium Cuvieri.—Grinders with transverse furrows on their crowns. Body twelve feet long. Found fossil in Paraguay, South America.

No living species of this genus have been discovered.

TRIBE II.—EFFODIENTIA, OR DIGGING EDENTATA.

Muzzle generally elongated; with grinders only, or destitute of teeth.

Genus 3.—DASYPUS.—Linnaeus.

Generic Character.—No incisory teeth, or $\frac{2}{4}$; no canines: teeth varying exceedingly in the dentary formula; some having 28, while they extend in others to 68; these teeth are cylindrical and separate, without enamel on the inner side. Head long, mouth and eyes small; tongue partially extensible; body enveloped in shelly plates, which also cover the upper part of the head, and entire tail, with moveable transverse bends between

them; fore feet with four to five toes, hind feet with five toes; nails long, formed for digging; tail long, round; stomach simple, intestines without a cæcum.

SECTION I.—Four toes on the fore feet; two or four teats.

Dasypus Apar.—THE THREE-BANDED ARMADILLO.

Plate XXI. fig. 11.

With three moveable transverse bands on the body; tail short and flat; with five toes on fore and hind feet; grinders $\frac{5-5}{8-8}$; two pectoral teats. Inhabits Brazil and Paraguay.

This is the type of F. Cuvier's genus *Tatusies*.

SECTION II.—With five toes on the fore feet, and two pectoral teats.

Dasypus sexcinctus.—THE SIX-BANDED ARMADILLO.

Plate XX. fig. 9.

Incisive teeth $\frac{2}{1}$, grinders $\frac{8-8}{5-5}$. Having six or seven moveable transverse bands; belly covered with long hairs; tail round, half the length of the body; feet with five toes. Inhabits Paraguay.

This is the type of F. Cuvier's genus *Tatous*.

Genus 4.—ORYCTEROPUS.—*Geoffroy*.

Generic Character.—Without incisive or canine teeth; grinders $\frac{6}{6}-\frac{6}{6}$, separate, formed of a bony substance, traversed longitudinally, by a number of parallel tubes; head elongated; fore feet with four toes; hind feet with five toes, and plantigrade; nails strong, shaped like hoofs. The tarsi and metatarsi very like those of the Pachydermata.

Orycteropus Capensis.—THE CAPE ANT-EATER.

Plate XXIV. fig. 1.

Fur pale gray, approaching to lead colour, and inclining to red

on the flanks; feet deep brown. Three feet five inches long. Inhabits the Cape of Good Hope.

Genus 5.—MYRMECOPHAGA.—*Linnæus.*

Generic Character.—Perfectly toothless; head elongated; muzzle tapering to a point; tongue protractile; toes united to the root of the nails, four before and five behind, or two before and four behind; furnished with strong nails formed for digging: two pectoral teats and two ventral; tail sometimes prehensile.

Myrmecophaga jubata.—THE GREAT ANT-EATER.

Plate XXII. fig. 1.

Fur brown, with an oblique black line on the shoulders, extending to the rump; four toes on the fore feet and five on the hind feet; tail long, furnished with long flowing hair; muzzle long, tapering, trumpet-shaped. Upwards of four feet long. Inhabits South America.

Genus 6.—MANIS.—*Linnæus.*

Destitute of teeth; body elongated, covered with strong corneous, triangular, imbricated scales; muzzle pointed; tongue protractile; feet with five toes, formed for digging; tail long, tapering, covered with scales, somewhat prehensile.

Manis crassicaudata.—THE PANGOLIN, OR SHORT-TAILED MANIS.

Plate XXII. fig. 2.

Tail thick at the base, tapering; somewhat shorter than the body; scales forming eleven longitudinal series; body about one foot ten inches long; tail about five inches. Inhabits Bengal and the Indian Islands.

Genus 7.—CHLAMYPHORUS.—*Harlan.*

Generic Character.—No incisory or canine teeth, grinders

$\frac{8-8}{8-8}$; total 32. The two first pointed, the others flat at top, and cylindrical in form; shell composed of a series of transverse plates; five toes on the fore feet, and five on the hind ones, with long laterally compressed nails; tail short and prehensile; lower jaw articulated nearly in the same manner as the *Pachydermata*.

Chlamyphorus truncatus.—THE TRUNCATED CHLAMYPHORUS.

Plate VIII. fig. 4.

Body covered with a leather-like shell, abruptly truncated behind, and with white silky hair underneath; tail short, and bent under the abdomen. Length about five inches. Inhabits North America.

TRIBE III.—MONOTREMA.—No teats observable; with marsupial bones.

Genus 8.—ECHIDNA.—*Cuvier*.

Generic Character.—Destitute of teeth, but with the palate aculeated; muzzle flat, narrow, and small; tongue protractile; eyes small; no external ears; feet short, with five toes; a moveable sharp-pointed spur on the hind legs, through which an acrid secretion is ejected; tail short; body covered with spines; large marsupial bones. Body capable of a spherical shape.

Echidna hystrix.—THE SPINY ECHIDNA.

Plate XXIV. fig. 2.

Upper part of the body covered with thick spines, without hairs; under part with bristly hair, and deep brown spines, tipped with black. About the size of a hedge-hog. Inhabits New Holland.

Genus 9.—ORNITHORYNCHUS.—*Blumenbach*.

Generic Character.—No incisory or canine teeth, grinders $\frac{2-2}{2-2}$; total 8. Grinders fibrous, fixed only in the gum; having a horny beak, resembling a duck's bill; nostrils contiguous,

opening at the end of the upper mandible; cheek pouches; feet webbed, having five toes, with a spur on the hind ones in the male; tail short, broad at the base.

Ornithorynchus rufus.—THE DUCK-BILLED PLATYPUS.

Plate XXIV. fig. 3.

Fur uniformly reddish-brown above, and paler underneath. Fourteen inches long. Inhabits New Holland.

ORDER VIII.—PACHYDERMATA.

This order is so named from the thickness of the skin of the animals which compose it. They have two or three kinds of teeth. The four extremities furnished with the toes, variable in number, and terminated with strong nails or hoofs. They have no clavicles; and the organs of digestion are not formed for ruminating.

FAMILY PROBOSCIDEA.

The upper incisory teeth are in the form of elongated tusks; grinders are compound, and small in number; with five toes on all the feet; nose prolonged into a proboscis or trunk.

Genus 1.—ELEPHAS.—*Linnaeus*.

Generic Character.—Incisive teeth $\frac{2}{0}$, no canine teeth, grinders $\frac{2}{2}$; total 10. The incisive teeth are enormously elongated, and termed tusks, which taper, and are bent upwards towards their extremities, composed of ivory incased in a crust of enamel; the grinders are composed of vertical and transverse laminae; feet with five toes on each; nose elongated into a cylindrical proboscis, moveable in all directions, with an elongated finger-like member at its tip, which has the power of grasping; head very large; ears large and flat; neck very short; tail medium length, furnished with a tuft of hair; two teats. Nasal fossæ greatly elevated.

Elephas Indicus.—THE INDIAN ELEPHANT.

Plate XXII. fig. 3.

Skin dark blackish-brown; the head oblong, forehead concave, crown much elevated; ears large; hind feet with four hoofs; crown of the grinders marked by transverse undulating lines of enamel. Height ten feet, being the largest of living quadrupeds. Inhabits India, and the larger Eastern Islands. A white variety of this animal exists.

Genus 2.—LOXODONTA.—*F. Cuvier.*

Generic Character.—Incisory teeth or tusks $\frac{2}{0}$, no canine teeth, grinders $\frac{2-2}{2-2}$; total 10. The enamel is disposed in lozenges; head small, round; neck very short; ears very large; tail short; proboscis very thick at the base, and small at the point, where it is furnished with a moveable finger-like process, fitted for grasping; feet with five toes on the fore feet, and four on the hind ones.

Loxodonta Africanus.—THE LOXODON, OR AFRICAN ELEPHANT.

Plate XXIV. fig. 7.

Head round, forehead convex; ears very large, extending over the fore part of the shoulder; hind feet with three hoofs only. Less than the Asiatic Elephant.

Genus 3.—MASTODON.—*Cuvier.**Fossil.*

Generic Character.—Incisory teeth $\frac{2}{0}$, no canines, grinders $\frac{2-2}{2-2}$; total 10. Grinders rectangular, without cortical substance, the crowns with points disposed in pairs, varying in number.

Mastodon giganteum.—THE MAMMOTH.

Plate XXIII. fig. 4.

Grinders very broad, in proportion to their length, weighing from eleven to twelve pounds; tusks nine feet long. Height

to the withers eleven feet. Found fossil in North America. No living species of this genus have been discovered.

FAMILY II.—TRUE PACHYDERMA.

Most of them with three kinds of teeth; two, at least, in others; feet with four or two toes.

Genus 4.—HIPPOPOTAMUS.—*Linnaeus*.

Generic Character.—Incisors $\frac{4}{4}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{7-7}$; total 40. Upper incisory teeth thick, short, and conical, bent inward, the lower ones cylindrical, directed obliquely forward, the intermediate being the strongest; the canines greatly developed, forming strong tusks, which are obliquely truncated; the three or four first grinders are conical and simple; head thick and square; muzzle large and obtuse; eyes and ears very small; body very thick and heavy; legs short; feet with four toes; with two ventral mammæ; skin without hair; tail short, with hairs near its point.

Hippopotamus amphibius.—THE HIPPOPOTAMUS.

Plate XXII. fig. 4.

Skin dark blackish-brown; body very heavy; legs short; ears placed far back, and very small; end of the jaw very wide. Thirteen feet long. Inhabits the larger rivers of Africa.

Genus 5.—SUS.—*Linnaeus*.

Generic Character.—Incisors $\frac{4}{6}$ or $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{7-7}$; total 42 or 44. The lower incisory teeth directed obliquely forward, the upper ones conical; the canines protruded, and bent upwards; grinders simple and tuberculous; nose elongated, cartilaginous, and furnished with a particular bone to the snout; feet with four toes, the two middle ones only touching the ground, furnished with strong hoofs; body covered with bristles; mammæ twelve.

Sus scrofa.—THE HOG.

Plate XXV. fig. 2.

THE WILD BOAR.

Fig. 1.

THE COMMON OR DOMESTICATED HOG.

In a wild state it is blackish-brown, mixed with gray; tusks strong, triangular, and directed almost laterally. In the domestic state subject to infinite variety in form and colour. Inhabits, in a wild state, the great forests of Germany and Poland, &c.; and, in a domestic condition, every known country.

Sus babyrussa.—THE BABYROUSSA.

Plate XXV. fig. 4.

Lower tusks long, slender, turned up vertically; upper ones curved, very long, reaching to the forehead, above the eyes; legs long, slender. Inhabits the Indian Islands.

Genus 6.—PHASCOCHÆRUS.—Cuvier.

Generic Character.—Incisors $\frac{2}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{5-5}{4-1}$; total 30. The two intermediate incisive teeth smaller than the others; canines very large, strong, and erect; grinders composed of cylinders of enamel which envelope the osseous substance; cheeks with large warts or excrescences; toes like the sus.

Phaschochærus Africanus.—THE ÆTHIOPIAN BOAR.

Plate XXV. fig. 3.

Hair of a bright yellow or sand colour; tusks round, very thick, directed laterally and vertically; with a large fleshy lobe on each cheek.

Genus 7.—DICOTYLES.—Cuvier.

Generic Character.—Incisory teeth $\frac{4}{6}$, canines $\frac{1-1}{1-1}$, grinders

$\frac{6}{6}$; total 38. Canines or tusks projecting from the mouth; a vacant interval in the upper jaw before the canines, into which the under teeth enter; the two lower outer canines smaller, separated from the intermediate ones by a vacant space; fore feet with four toes; hind feet with three, only two of which rest upon the ground; on the back a glandular opening, from which exudes a fetid humour; a tubercle in place of a tail.

Dicotyles Sub-Niger.—THE COLLARED PECCARY.

Plate XXIX. fig. 1.

Hair yellowish-gray, each bristle having alternate rings of straw-colour and black; a black mane extends from the ear to the rump; face yellowish, grizzled; nose projecting considerably, very moveable; a yellow line runs from the mane across the shoulders, and terminates in the breast; ears very short and pointed. Length three feet. Inhabits South America.

DIVISION II.—Toes mostly unequal in number on the hind feet, and frequently so on the fore feet.

Genus 8.—ANOPLOTHERIUM.—Cuvier.

Fossil.

Generic Character.—Incisors $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, molars $\frac{7-7}{7-7}$; total 44. Teeth all in one line; general form supposed to be intermediate between the rhinoceros and horse; feet with two toes; grinders arranged in uniform lines.

Anoplotherium vulgaris.—THE GREATER ANOPLOTHERIUM.

Plate XXIII. fig. 5.

Represents the supposed shape of the animal, judging from the structure of the bones.

Genus 9.—RHINOCEROS.—Linnaeus.

Generic Character.—Either no incisory teeth, or $\frac{2}{2}$ or $\frac{4}{4}$; destitute of canines; grinders $\frac{7-7}{7-7}$ or $\frac{6-6}{6-6}$; total 32. The incisors are unequal among themselves, when they exist; the anterior

canines small; posterior ones progressively increasing; eyes small, lateral, and placed far back; as are also the ears, which are long and narrow; nose with one or two erect inflected horns; feet with three toes; tail short, laterally compressed near the end; skin very thick, naked, and rugose; mammæ two.

Rhinoceros Indicus.—THE INDIAN RHINOCEROS.

Plate XXV. fig. 5.

Nose with one horn; two incisors in each jaw, with a small tooth on each side in the upper jaw; skin forming several large and deep folds. Length ten feet; height about five feet. Inhabits India, on the banks of the Ganges and Burrampooter.

Rhinoceros Africanus.—THE AFRICAN RHINOCEROS.

Plate XXV. fig. 6.

Nose with two erect horns, the upper one smallest; no incisors in either jaw; skin black, without folds.

Genus 10.—HYRAX.—Hermann.

Generic Character.—Incisors $\frac{2}{4}$, no canines, grinders $\frac{7-7}{6-6}$; total 32. Incisors large and bent, with a vacant space between them and the grinders; anterior grinders in the upper jaw, with flat crowns, the others slightly concave; posterior lower grinders having a transverse central ridge on the crown; fore feet with four or three toes; hind feet with four toes; nails small and flat; head large, round; muzzle short; nostrils oblique; ears large and rounded; eyes small; no tail; fur of two kinds, short and woolly, and long and silky; six mammæ, two pectoral and four ventral.

Hyrax Capensis.—THE CAPE HYRAX.

Plate XXIX. fig. 2.

Fur grayish-brown above, whiter underneath; inside of the ears white; four toes on all the feet. Length about two feet six inches; height eight inches. Inhabits the Cape of Good Hope. This is the Coney of the Sacred Writings.

*Genus 11.—PALÆOTHERIUM.—Cuvier.**Fossil.*

Generic Character.—Incisors $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{7-7}$; total 44. Incisors wedge-shaped and parallel; canines conical, crossing each other; grinders square, with four roots, ridged with enamel, separated from the canines by a vacant space; general form of the skull like that of the Tapir.

* PALÆOTHERIA.—Lower grinders set in double crescents.

Palæotherium medium.—Size of the wild boar; feet long and slender.

** LOPHIDON.—Lower grinders with transversely ridged crowns.

Palæotherium giganteum.—Eight feet long. Found in alluvial formations in the neighbourhood of Paris.

Genus 12.—TAPIRUS.—Cuvier.

Generic Character.—Incisive teeth $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, grinders $\frac{7-7}{6-6}$; total 42. Intermediate incisors shorter than the exterior; a void between both the incisors and the canines and grinders; nose elongated, forming a small moveable proboscis, but not prehensile like that of the Elephant; eyes small; ears long and mobile; fore feet with four toes; hind feet with three; all the toes are provided with short round hoofs; tail very short; two inguinal mammæ.

Tapirus Americanus.—THE AMERICAN TAPIR.

Plate XXV. fig. 7.

Hair smooth, thin, deep blackish-brown; neck with a thick rounded crest, surmounted by a thin mane of stiff blackish hairs. Length of body six feet. Inhabits South America.

FAMILY III.—SOLIDUNGULA.

With three kinds of teeth ; only one visible toe, and a strong hoof on each foot.

Genus 13.—EQUUS.—Linnaeus.

Generic Character.—Incisors $\frac{6}{6}$, canines $\frac{1-1}{1-1}$, which are wanting in the females of some species, grinders $\frac{6-6}{6-6}$; total 40. The grinders are furrowed on each side with flat crowns, and several ridges of enamel ; between the canines and grinders a vacant space ; upper lip capable of considerable motion ; eyes large ; ears rather large, pointed and erect ; feet with a single visible toe, covered with strong hoofs ; tail with long hair, or in some species with a tuft at its extremity ; two inguinal teats ; stomach simple and membranaceous ; intestines and cæcum very large.

Equus Caballus.—THE HORSE.

Plate XXVI. fig. 1 and 2.

Hair of various colours ; with a long mane and tail ; no humeral stripe. Subject to many modifications of form from climate and food.

Supposed to be a native of Asia, being found wild on the tracts which bound the Sea of Arel and the Caspian Sea. Found wild from an emancipated stock in South America.

Mulus.—THE MULE.

Plate XXVI. fig. 3.

This is bred betwixt the Horse and Ass. When the sire is a Horse and the dam a she-ass, it was termed *Hinnus* by the ancients, and when the sire is a Jack Ass and the dam a Mare it was termed *Mulus*. The latter is considered the best.

Equus asinus.—THE ASS.

Plate XXVI. fig. 4.

Fur gray, or brownish-yellow, with a broad dorsal band, and a black humeral stripe across the shoulders ; long hair at the end

of the tail. The wild race as large as a moderate sized horse. Native country unknown.

Equus zebra.—THE MOUNTAIN ZEBRA.

Plate XXVII, fig. 1.

Fur cream-white, with numerous brownish-black transverse bands of more or less depth of shade ; lighter down the middle of each band. Size of a small horse. Inhabits Africa.

ORDER IX.—RUMINANTIA.

Having three kinds of teeth ; destitute of incisory teeth in the upper jaw, with usually eight in the lower one, which are opposed to a callosity on the upper gums. In some species there are canines in the upper jaw, and others have them in both jaws ; grinders, twelve in each jaw, marked with two double crescents of enamel on their crowns, of which the convexity is outwards in the lower, and internal in the upper jaw ; articulations of the jaw, adapted for a triturating motion ; without clavicles ; limbs disposed for walking ; feet with two hooved toes ; metacarpal and metatarsal bones united ; organs of digestion calculated for ruminating, consisting of four stomachs ; intestines long ; from two to four inguinal mammæ ; males always with horns, and also the females in most species.

The food of the Ruminantia consists always of vegetables. They embrace a wide geographical range.

The order is divided into five tribes.

TRIBE I.—CAMELIDÆ.

Without horns, or succentorial hoofs ; feet with horny soles ; toes covered with nails ; canines in both sexes.

Genus 1.—CAMELUS.—*Linnaeus*.

Generic Character.—Incisory teeth $\frac{2}{6}$, canines $\frac{1-1}{1-1}$, false grinders $\frac{1-1}{1-1}$, true grinders $\frac{2-2}{2-2}$; total 36. Inferior grinders in the

form of cutting wedges ; the superior ones lateral ; canines conical, strong, and erect ; false grinders on each side of the interdental space ; head long ; nostrils slit obliquely, and closing at will ; upper lip cleft ; eyes large, projecting ; ears small ; neck very long, bent ; feet with toes only free ; back with one or two callous fleshy hunches ; breast with callosities, and flexures on the extremities ; hair woolly ; tail medium length ; four ventral mammæ.

Camelus Bactrianus.—THE BACTRIAN CAMEL.

Plate XXVIII. fig. 1.

Back with two hunches ; hair plentiful on the upper part of the neck ; generally brown. About ten feet long. Its original country not known. Inhabits, in a domesticated condition, Persia, Tartary, Turkey, and China.

Camelus dromedarius.—THE DROMEDARY, OR ARABIAN CAMEL.

Plate XXVIII. fig. 2.

Back with one hunch ; fur of a pale fawn-coloured brown. About eight feet long. Original country unknown. Domesticated in Arabia, Turkey, and Italy.

Genus 2.—AUCHENIA.—*Illiger*.

Generic Character.—Incisors $\frac{1}{0}-\frac{1}{0}$, canines $\frac{1}{1}-\frac{1}{1}$, false grinders $\frac{1}{0}-\frac{1}{0}$, true grinders $\frac{5}{5}-\frac{5}{5}$; total 32. Teeth resembling those of the Camel ; muzzle not much produced ; upper lip cleft ; eyes large and brilliant ; ears long, pointed, and mobile ; neck slender, vertical ; feet with two toes, provided with crooked nails ; soles of the feet callous ; breast and knees with callosities ; tail short ; two ventral mammæ.

Auchenia glama.—THE LLAMA.—*White Variety*.

Plate XXIX. fig. 3.

Hair long, white, and soft ; head long ; forehead slightly protuberant, joining the forehead without a sensible interruption ; tail short ; legs slender. Length nearly six feet ; height about

four feet. Inhabits Peru and the Southern Andes, in a wild and also domesticated state.

TRIBE II.—CERVIDÆ.

Feet bisulcated and destitute of horns; males with canines in the upper jaw.

Genus 3.—*Moschus*.—*Linnæus*.

Generic Character.—Incisors $\frac{0}{8}$, canines $\frac{1-1}{0-0}$ in the males, grinders $\frac{6-6}{6-6}$; total 34. Canines wanting to the females. Incisors and grinders as in other ruminating animals. Superior canines large in the males; ears long, pointed; body slender; feet with cleft hoofs, enveloping the last phalanges; tail very short; two inguinal mammæ; no horns.

Moschus moschiferus.—THE THIBETAN MUSK.

Plate XXVIII. fig. 3.

Fur grayish-brown, very coarse and brittle; abdomen with a pouch, before the prepuce of the male, filled with an unctuous musky substance; canine teeth long, edged, and curved backwards; hoofs very long. Size of a roebuck. Inhabits Thibet, China, and Tartary.

The substance contained in the pouch is the musk of the shops.

Moschus memminna.—THE CEYLON MUSK, OR MEMMINNA.

Plate XXVIII. fig. 4.

Fur olivaceous-ash above, white beneath; sides and back marked with irregular white spots; destitute of a musk bag. About sixteen inches in length. Inhabits Ceylon.

Moschus pygmaeus.—THE PYGMY MUSK, OR CHEVROTAIN.

Plate XXVIII. fig. 5.

Fur reddish-brown above, white below. About eight inches long. Inhabits Guinea.

This is the least of cloven-footed quadrupeds.

Genus 4.—*CERVUS.*—*Linnaeus.*

Generic Character.—Incisors $\frac{0}{5}$, no canines, or $\frac{1-1}{0-0}$, grinders $\frac{6-6}{6-6}$; total 32 or 34. The canines, when they exist, are bent back and compressed; head long, terminated by a muzzle; eyes large, pupils elongated transversely; most of the species have a lachrymal sinus; ears long and pointed; tongue soft; horns solid, deciduous, palmated, branched, or simple, in the males; females destitute of horns, except in one species; four inguinal mammæ.

Sub-Genus 1.—*ALCE.*—Horns united into one blade or palm, more or less indented; no muzzle, nor canines; tail very short.

Cervus alces.—*THE ELK.*

Plate XXVIII. fig. 6.

Fur dark ashy-brown, or sometimes whitish; horns spreading into a broad palm; with exterior snags; no separate branches; head hanging; muzzle very tumid, cartilaginous; ears long; neck short; a tuft of hair under the throat; hair long on the back of the neck; legs very long. Seven feet high at withers. Inhabits the northern parts of Europe and Asia.

Sub-Genus 2.—*RANGIFER.*—Both sexes have horns; palmated or pointed at the brow, bezantlers, and at top; incipient muzzle; canines in both sexes.

Cervus tarandus.—*THE REIN-DEER.*

Plate XXVIII. fig. 7.

Fur on the upper parts dark grayish-brown, whitish-gray beneath; tail very short. About five feet and a half long. Inhabits the Arctic Circle of both Continents.

In the background of the plate is represented the Laplander's sledge, which these useful animals draw.

Sub-Genus 3.—*DAMA.*—Horns round, with brow bezantler pointed; summit palmated length-ways; no canines; with a muzzle.

Cervus dama.—THE FALLOW-DEER.

Plate XXX. fig. 3.

Fur deep grayish-brown, with white spots; whitish below; horns round, and found in the male only; with two antlers; summits palmated, and deeply indented above and below; tail long. Inhabits Europe and Western Asia.

Sub-Genus 4. — ELAPHUS. — Horns round; three antlers turned to the front; summit terminating in a fork or in snags from a common centre; having a suborbital sinus; canines in the males; and with a muzzle.

Cervus elaphus.—THE STAG.

Plate XXX. fig. 1.

Fur reddish-brown in summer, and brownish-gray in winter; with a pale disc on the buttocks; horns with three anterior antlers, the summit forming a crown of snags from a common centre; with a muzzle; lacrymal sinuses. Inhabits Europe, Asia, and the north of Africa.

Sub-Genus 5. — RUSA. — Horns trifurcate, with a basal but no medium antler; beam terminating in a perch, with one process or snag on the anterior or posterior side of the beam, and forming a fork; muzzle broad; suborbital slit deep; having canines, sometimes even in the females; neck with a mane; colours generally dark.

Cervus Equinus.—THE MALAYAN RUSA.

Plate XXVIII. fig. 8.

Fur dark-brown, with an orange-coloured disc on the buttocks; horns robust, pearly; basal antler on the burr; terminal bifurcated from the internal posterior side of the beam; points obtuse; suborbital opening very large, moveable, admitting air; heavy mane covering the sides of the neck and throat; suture large; canines in both sexes. Inhabits Java and Sumatra.

Sub-Genus 6.—*AXIS*.—Horns similar to the former, but more slender; no canines; suborbital opening small, or none; usually spotted with white; no mane; tail down to the houghs.

Cervus axis.—THE *AXIS*.

Plate XXX. fig. 2.

Fur bright fulvous, spotted with white; forehead with a dark spot; horns round, elongated, rather smooth; anterior antler near the burr; summits of beams converging; second antler medial, on the internal side of the beam turning to the rear; without canines, or suborbital sinus; tail long, brown above, the point dark. Inhabits the East Indies.

Sub-Genus 7.—*CAPREOLUS*.—Horns somewhat allied to the former; a small antler to the front, high upon the beam; the superior one turned to the rear, and forms a somewhat flattened fork; destitute of canines, and lachrymary sinus; tail very short.

Cervus capreolus.—THE *ROEBUCK*.

Plate XXX. fig. 4.

Fur reddish-fawn colour, with a disc on the buttocks; horns rather small, cylindrical; a small antler on the middle of the beam, pointing forward; a second higher up, turned to the rear; tail very short. Inhabits most parts of Europe, and temperate parts of Asia, and north-west of Scotland.

Sub-Genus 8 —*MAZAMA*.—Horns having a tendency to flatten, bending into segments of a circle, the concave part to the front; one anterior antler, the other posterior and mostly vertical; tail long; suborbital sinus forming a fold of the skin; having a muzzle, but no canines.

Cervus paludosus.—THE *GUAZUPACO DEER*.

Plate XXXI. fig. 2.

Fur red-bay above, in summer, and approaching to gray in winter; white below; the hair of the inguinal parts, and under the tail, long and white; with a black triangle on the forehead:

horns rather large, cylindrical, terminated by a fork; with a branch above the burr, pointing forward and upwards, sometimes bifurcate; lachrymal sinus considerably developed; tail middling. Size of a stag. Inhabits Paraguay, in swampy places.

Sub-Genus 9. — SUBULO. — Horns small, simple, without branches or processes; lachrymal sinus small; muzzle widening to a glandular termination, near the nostril.

Cervus rufus. — THE PITA BROCKET.

Plate XXXI. fig. 4.

Fur lively reddish-bay; face and feet rufous; lips and chin white; head pointed; muzzle small above; small lachrymal sinus; male with canines; horns about five inches long. Somewhat higher than the roebuck. Inhabits South America, south of Honduras, and Paraguay.

Sub-Genus 10. — STYLOCERUS. — Horns small, with only one anterior snag standing upon elevated pedicles; canines long in most of the males; suborbital sinus deep; muzzle small.

Cervus montjac. — THE SUMATRA MUNTJAK.

Plate XXXI. fig. 3.

Fur gray-brown, paler below; horns very short, upon pedicles, bent inwards, with a little rudimentary antler at the base, pointing forwards; pedicles prolonged in the form of ribs, down to the nose; male with two superior canines. Size of a roebuck. Inhabits India.

TRIBE III. — GIRAFFIDÆ.

Frontal processes prolonged in the shape of horns, covered with hairy skin, in both sexes.

Genus 5. — CAMELOPARDALIS. — *Linnaeus.*

Generic Character. — Incisors $\frac{0}{3}$, no canines, grinders $\frac{6-6}{6-6}$; to-

tal 32. Head very long, with a bony sub-conic tubercle on the forehead, and two osseous peduncles covered with skin, and hairy, terminated by a tuft of bristles; upper lip entire; no lachrymal sinuses; ears pointed; tongue rough, with corneous papillæ; eyes large, prominent; neck extremely long, erect; withers greatly elevated; legs slender, feet large, cleft; a callosity on the sternum; four mammæ.

Camelopardalis giraffa.—THE GIRAFFE.

Plate XXX. fig. 5.

Skin cream-coloured white, marked with dark brown irregularly-shaped spots or patches; tail extending to the hough joint, terminated by a tuft of long dark brown hairs; neck with a short mane, extending to the withers, in alternate black and white stripes. The tallest of mammiferous quadrupeds, being eighteen feet in height. Inhabits Africa.

TRIBE IV.—CAPRIDÆ.

Horns persistent, generally annulated, having the prominences of the frontal bone covered with a horny case.

Genus 6.—ANTILOPE.—Cuvier.

Generic Character.—Incisors $\frac{0}{8}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Horns common to both sexes, or in the male only; bony core round and solid, sometimes compressed, generally standing beneath the frontal crest; variously inflected, for the most part with annulations, or a projecting spiral ridge, in some species bifurcated; with a muzzle, half muzzle, or simple nostrils; lachrymal sinus in most species; eyes large; ears generally long, pointed; with inguinal pores; legs slender; two or four teats.

Antelope cervicapra.—THE COMMON ANTELOPE.

Plate XXX. fig. 6.

Fur fawn colour above, white beneath; with tufts on the

knees; horns black, round, annulated, with three flexures; female without horns. About four feet long. Inhabits India.

Sub-Genus 1.—GAZELLA.—Horns, with double flexures, lyre form, annulated, without ridges in either sex.

Antilope Euchore.—THE SPRINGBOK.

Plate XXIX. fig. 4.

Fur pale dun; horns brownish-black, lyrate; chest and belly divided by a longitudinal broad chestnut stripe; abdomen and inside of the legs white; face white, with a chestnut stripe running from the ear to the mouth, on each side. Four feet and a half long. Inhabits Southern Africa.

Sub-Genus 2.—CERVICAPRA.—Horns simple, having no annulations, or ridges; some species, however, have a few.

SUB-DIVISION I.—With horns pointing forward.

Antilope eleotragus.—THE RIETBOK.

Plate XXIX. fig. 5.

Fur ash-gray, tinged with ochre, white beneath; hair on the throat and breast long, of a cream white; horns black, slightly bent forward, nine or ten inches long; tail about ten inches. Four feet and a half long. Inhabits Caffraria.

SUB-DIVISION II.—Horns erect.

Antilope quadriscopa.—THE FOUR-TUFTED ANTELOPE.

Plate XXIV. fig. 6.

Fur yellowish-gray, white beneath; legs slender, with tufts of hair on the knees and hind legs; horns four inches long, reclining, diverging, and pointed, with six or seven small annulations at their base. Size of the roebuck. Inhabits Africa.

SUB-DIVISION III.—Horns bent back.

Sub-Genus 3.—ALCELAPHUS.—Horns annulated, and with double flexures; in neither sex are they ridged; no inguinal pores, but with lachrymal sinuses.

Antilope caama.—THE HARTBEEST.

Plate XXIX. fig. 6.

Fur betwixt bay and fawn colour, deeper on the back and legs, and forehead; points of horns much turned back. Upwards of six feet long. Inhabits Southern Africa.

Sub-Genus 4.—TRAGELAPHUS.—Horns spiral, more or less compressed, with ridges in both sexes, or in the males only; lachrymal sinuses sometimes wanting.

Antilope scripta.—THE HARNESSSED ANTELOPE.

Plate XXXII. fig. 8.

Fur bright fulvous bay; sides with two white transverse and longitudinal bands; horns seven inches long, reclining. Four feet eight inches long. Inhabits Senegal.

Sub-Genus 5.—ORYX.—Horns large, erect, and pointed in both sexes, with a slight curvature backwards; annulated; having lachrymal sinuses; tail tufted.

Antilope leucoryx.—THE WHITE ORYX.

Plate XXIX. fig. 8.

Fur white; a black triangular spot on the forehead, and another lozenge-shaped one on the nasal ridge, and a third through the eyes; and a transverse brown fillet above the knee joints in the fore legs; mane short and brown; tail with a tuft at its point. Size of a small horse. Inhabits Arabia and Persia.

Sub-Genus 6.—*EGOCERUS*.—Horns very large, strong, and pointed, bent backwards; annulated; a semimuzzle; no sub-orbital process; tail pretty long.

Antilope leucophæa.—THE BLUE ANTELOPE.

Plate XXIX. fig. 9.

Fur silver-gray; mane short, white, and turning towards the head; tail with a tuft at the end; horns slightly compressed, scimeter-shaped, twenty inches long, very closely annulated; ears long. Nearly six feet long. Inhabits Southern Africa.

Antilope equina.—THE ROAN ANTELOPE.

Plate XXIV. fig. 5.

Fur coarse grayish-brown; a white spot round the eye, which is formed of long hairs; horns very strong, about twenty-four inches long; reflected with upwards of twenty prominent annulations. Inhabits Southern Africa.

Sub-Genus 7.—*RUPICAPRA*.—With simple, vertical, round and striated horns, strongly bent backwards towards the point in both sexes; no lachrymal processes or inguinal pores; tail very short; mammae two.

Antilope rupicapra.—THE CHAMOIS.

Plate XXXII. fig. 3.

Fur fawn-coloured in summer, bay-colour in winter; a dark stripe crosses each eye; tail short; horns from seven to eight inches long, rising perpendicular to the head; hooked at the end. Nearly four feet long. Inhabits Switzerland.

Sub-Genus 8.—*ANTILOCAPRA*.—Horns compressed, posteriorly hooked towards the point, and provided with an anterior antler.

Antelope furcifer.—THE PRONG-HORNED ANTELOPE.

Plate XXIV. fig. 4.

Fur rufous-brown above, white below ; neck with a red mane ; horns one foot long, compressed, flat interiorly and striated ; with a flattened snag to the front, forking with the after part, which forms a hook to the rear ; eyes large, high in the head. About three feet high at the shoulder. Inhabits the United States.

Genus 7.—CAPRA.—*Linnaeu* .

Generic Character.—Incisors $\overset{0}{8}$, no canines, grinders $\overset{6-6}{6-6}$; total 32. Horns common to both sexes ; they rise perpendicularly, and are then directed backwards, more or less angular and nodose ; no muzzle ; interval between the nostrils naked ; without lachrymal sinus, or inguinal pores ; ears erect, pointed ; legs strong ; tail short ; chin with a beard.

Capra ibex.—THE IBEX.

Plate XXXII. fig. 4.

Hair reddish-brown in summer, and gray in winter ; beard short, dark brown ; dorsal line blackish brown ; horns thirty inches long, dark brown, depressed, with two longitudinal ridges at the sides, crossed by numerous transverse knotty annulations. Five feet long. Inhabits the Alps and Pyrenees.

Capra ægagrus.—THE GOAT.

Plate XXXII. fig. 5.

Hair long, brown, or gray, varying with the seasons ; horns forming an acute angle to the front, rounded at the back, transversely ribbed, forming an undulating anterior edge. About three feet long. Inhabits the mountains of Persia. Subject to great variety, from climate and other local circumstances.

Variety.—THE ANGORA GOAT.

Plate XXXII. fig. 6.

Is generally white; with buff-coloured ears, and yellow horns; hair fine and curled.

Variety.—THE SYRIAN GOAT.

Plate XXXII. fig. 7.

Hair long, brown; horns short, black, bent downwards; ears pendulous. From one to two feet long.

Genus 8.—Ovis.—*Linnæus*.

Generic Character.—Incisors $\frac{0}{8}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Horns common to both sexes, sometimes wanting in the female; thick, angular, wrinkled transversely, pale-coloured, turned laterally and spirally; ears small; legs slender; hair of two kinds; tail more or less short; having two inguinal mammæ.

Ovis aries.—THE SHEEP.

Plate XXXIII. fig. 1.

Wool pale cream-coloured white; in general furnished with more wool than hair; horns frequently wanting; when they exist, less strong, arched backwards, and curved downwards at the tips. Subject to great variety, arising from climate and food.

Variety.—THE WALLACHIAN SHEEP.

Plate XXXIII. fig. 3.

Horns spiral, upright; fleece long, shaggy. This is the *Strep-sicheros* of the ancients.

Variety.—THE TARTARIAN SHEEP.

Plate XXXIII. fig. 2.

Fleece roan-coloured; ears pendulous; a large protuberance of fat in place of a tail.

Ovis musmon.—THE MUSMON.

Plate XXXIII. fig. 4.

Fleece brown, or liver-coloured gray ; with some white upon the face, legs, and belly ; horns curved back ; forming little more than half a circle ; a tuft of hair under the throat. Size of a common ram, but longer in the legs. Inhabits the mountains of Corsica and Sardinia.

Genus 9.—DALMALIS.—*Smith.*

Generic Character.—Incisors $\frac{9}{8}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Horns common to both sexes, or found in the males only, nearly straight, with a long spiral ridge ; without lachrymal sinuses ; head heavy ; neck short ; spinous process of the first vertebræ of the back mostly elevated, and croup generally depressed ; body bulky ; dew-laps on the breast ; tail long, tufted.

These Major Smith divides into the following Sub-Genera : —1. *Acronotus*. 2. *Boselaphus*. 3. *Strepsiceros*. 4. *Portax*. Two and three we do not think sufficiently distinct for Sub-Genera.

Dalmalis oreas.—THE IMPOOFO.

Plate XXXI. fig. 5.

Fur grayish-fawn colour ; horns black, thick, diverging ; with a strong ridge ; having a small mane on the neck ; dewlap with long hairs. Eight feet long. Inhabits Southern Africa. This is an example of Sub-Genus 2.

Sub-Genus 4.—PORTAX.—Horns in the males only, placed on the sides of the frontal crest ; short, robust, sub-angular, without annulations ; a complete muzzle ; deep suborbital sinus ; elevated shoulders ; croup depressed ; body bulky and short ; neck with a mane ; throat with a tuft of hair ; small dewlap.

Dalmalis picta.—THE NYL-GHAU.

Plate XXXII. fig. 1.

Fur gray in the male, fawn coloured in the female; throat with a tuft of long dark brown hair; having a short erect mane from the crown to the withers; horns conical, black, and smooth, much separated, bending forward, inflected at tips; legs with black and white annulations on the pasterns; tail reaches the hough joint. Height at shoulders four feet one inch. Inhabits India.

TRIBE V.—BOVIDÆ.—*Smith*.

Horns persistent, common to both sexes, forming a sheath upon a bony nucleus, increasing by rings at the base, horns round, without annulations, striæ, or ridges, never straight, but bending outwards or forwards from their base; muzzle broad, naked; no lachrymal sinuses; neck short; breast with dewlaps; vertebræ of the tail frequently prolonged beyond the houghs; no inguinal pores; females with an udder; with from two to four teats.

Genus 10.—CATOBLEPAS.—*Smith*.

Generic Character.—Incisors $\frac{0}{8}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Head square; horns flat, and broad at base, nearly joining on the crest of the frontals; lying outwards, turning down, with the points turning upwards; muzzle broad; nostrils provided internally with a moveable valve; glandulous excrescence on the cheeks; neck with a mane; throat with a beard; dewlap small; bristles round the orbits and on the lips; a ridge of hair on the forehead; tail hairy as in the horse.

Catoblepas gnu.—THE GNU.

Plate XXXII. fig. 2.

Fur rich brown; tail reaching the hough joint, brown above and white beneath; horns parallel at the base, from which they bend abruptly backwards; neck with a mane; forehead with a line of hair up its centre; and a beard under its jaws; a ridge

of hair extending from the bottom of the throat to the middle of the abdomen. Length five feet and a half. Inhabits Southern Africa.

Genus 11.—OVIBOS.—Blainville.

Generic Character.—Incisors $\frac{0}{0}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Body thick, compact; legs short; forehead broad, flat; face elevated; no muzzle; horns close at base, turned downwards, and slightly upwards at the points; ears short, placed behind the horns; eyes small; without furrow on the upper lip; tail very short.

Ovibos moschatus.—THE MUSK OX.

Plate XXIX. fig. 10.

Fur long and woolly, umber-brown colour, hanging nearly to the ground; frog on the hoof soft; transversely ribbed, and partially covered with hair. Size of a small cow. Inhabits North America.

Genus 12.—BOS.—Linnaeus.

Generic Character.—Incisive teeth $\frac{0}{0}$, no canines, grinders $\frac{6-6}{6-6}$; total 32. Head large; forehead straight; muzzle square; horns occupying the crest of the forehead; eyes large; ears funnel shaped; dewlaps on the neck; female with an udder, having four teats; tail long, tufted; horns simple, conical, round, with various inflections; sometimes directed laterally.

Sub-Genus 1.—BUBALUS.—Smith.—Animals low in proportion to their bulk; head large; forehead narrow, very strong, convex; forehead straight; muzzle square; horns lying flat, or bending laterally, with a certain direction to the rear; eyes large; ears funnel-shaped; dewlap small; udder of the female with four teats; tail long, slender.

Bos bubalus.—THE DOMESTIC BUFFALO.

Plate XXXIII. fig. 5.

Horns directed laterally, compressed, with a ridge in front, reclining towards the neck, and the points turned up; hair coarse, colour of a dark-brown or black; mammæ of the male placed in a transverse line; tail with a tuft at the end. Five feet six inches high at shoulders. Domesticated in India, Persia, Turkey, Italy, &c.

Sub-Genus 2.—BISON.—*Smith.*—Forehead slightly arched, much broader than high; horns placed before the salient line of the frontal crest, the plane of the occiput forming an obtuse angle with the forehead, and semicircular in shape; fourteen or fifteen pairs of ribs; the shoulders rather elevated; the tail shorter; the legs more slender; tongue blue; hair soft and woolly.

Bos Americanus.—THE AMERICAN BISON.

Plate XXXIII. fig. 7.

Hair woolly, brownish-black, very abundant on the head and shoulders; with a long beard; short and close on the hind quarters; head hanging; neck short; forehead broad; muzzle wide and white; horns small, distant, lateral, pointing backwards; eyes round, dark, and full; chest heavy; loins slender; tail short. Five feet high at shoulders, four feet at the croup. Inhabits interior of North America.

Sub-Genus 3.—TAURUS.—Forehead square from the orbits to the occipital crest; somewhat concave, and not arched as in the former; horns rising from the sides of the salient ridge or crest of the frontal bone; the plane of the occiput forming an acute angle with the frontal bone, and of a quadrangular form; curve of the horns outwards, upwards, and forwards; no mane; a deep dewlap; thirteen pair of ribs; tail long; udder with four teats in a square.

Bos urus.—THE URUS, OR EUROPEAN BISON.

Plate XXVII. fig. 4.

Head, shoulders, and breast, covered with long brown coarse hair ; under the throat a long pendant beard ; horns thick, round, lateral, and curved upwards. More than ten feet long. Inhabits the forests of Europe.

Variety.—THE COMMON BULL.

Plate XXVII. fig. 2.

Hair smooth and short all over the body ; slightly curled on the forehead.

THE COW.

Plate XXVII. fig. 3.

Variety.—THE ZEBU.

Plate XXXIII. fig. 6.

Horns erect, and slightly turned back at points ; with a small hump on the shoulders. About three feet high. Inhabits India.

ORDER X.—CETACEA.

Body pisciform, terminated by a caudal appendage, cartilaginous and horizontal ; two anterior extremities formed like fins, the bones of which are flattened and very short ; neck very short and thick ; two pectoral or two abdominal teats ; ears with very small external openings ; brain large ; hemisphere well developed ; bone of the internal ear separate from the head ; two rudimentary bones in the flesh are substituted for the pelvis.

FAMILY I.—SIRENIA.

Herbivorous Cetacea.

Molars flat in the crown ; some species are furnished with

tusks in the upper jaw ; two pectoral teats ; mustachios ; nostrils, properly so called, placed at the end of the muzzle ; nasal apertures situated in the upper part of the head ; body massive.

Genus 1.—*MANATUS.*—*Linnæus.*

Generic Character.—Incisors $\frac{2}{0}$, no canines, grinders $\frac{9-9}{9-9}$, total 38. The incisory teeth are very small, and exist in the fœtus only ; adults having only 32 teeth, four of the molars being lost while young ; grinders with two transverse inflated ridges ; head not distinct from the body ; mustachios formed by a bundle of very stiff hairs directed downwards, forming a kind of corneous tusk on each side ; eyes very small ; tongue oval ; on the margins of the pectoral fins are rudimentary nails ; cervical vertebræ six ; sixteen pairs of thick ribs.

Manatus Senegalensis.—THE SENEGAL MANATUS.

Plate XXXIV. fig. 1.

Head short ; breadth of nasal foramina equal to three-fourths of their length ; inferior margin of lower jaw curved ; skin dark gray. About eight feet long. Inhabits the Senegal river, Africa.

Genus 2.—*HALICORE.*—*Cuvier.*

Generic Character.—Incisors $\frac{2}{0}$, no canines, grinders $\frac{5-3}{3-3}$; total 14, in the adult ; but in the young the incisors are $\frac{4}{8}$, no canines, grinders $\frac{5-5}{5-5}$; total 32. Two upper incisory teeth cylindrical, straight, forming real tusks ; grinders cylindrical, adults having only three on each side ; body pisciform, terminated by a horizontal two-lobed fin ; muzzle truncated and moveable ; lips with thick spiny hairs ; tongue soft ; fins short ; no distinct fingers or nails ; cervical vertebræ seven ; eighteen pairs of ribs.

Halicore Indica.—THE DUGONG.

Upper jaw with two short straight tusks, directed obliquely downwards ; lips gross, spinous ; tail bilobate ; of a bluish-gray colour. Seven or eight feet long. Inhabits the Indian Seas.

Genus 3.—STELLERUS.—Cuvier.

Generic Character.—Devoid of incisory or canine teeth, grinders $\frac{1-1}{1-1}$; total 4. Teeth not implanted in the jaws, but attached to a molar plate on each side, by vessels and nerves; grinders with tortuous surfaces; body ventricose towards its centre, gradually diminishing towards its caudal extremity, which is luniform, with two points; head obtuse; lips double; no external ears, or appearance of a neck; eyes surmounted by a cartilaginous crest; anterior extremities in the form of palmed fins.

Stellerus borealis.—THE NORTHERN STELLER.

Head round; without tusks or canines. Twenty-three feet long. Inhabits northern parts of the South Sea and North America.

FAMILY II.—CETACEA.

Teeth generally pointed, sometimes obtuse, all of one kind, and placed on the margins of the jaws; sometimes with transverse corneous laminae in the arch of the palate, in place of teeth; two anal mammae; spiracles or nostrils opening at the top of the head, for the ejection of water; tongue smooth; without hairs, eye-lashes, or mustachios.

TRIBE I.—SMALL-HEADED CETACEA.

Genus 4.—DELPHINUS.—Linnaeus.

Generic Character.—Teeth all shaped like canines, compressed, and notched on their cutting margins; varying in number from 200 to none; jaws more or less protruded in form of a beak; aperture of spiracles luniform; an adipose dorsal fin, with sometimes a longitudinal dorsal fold of skin; tail horizontally flattened and bifurcated.

Sub-Genus 1.—DELPHINUS.—Cuvier.—Muzzle elongated into a moderate beak; large at the base, point rounded; jaws pos-

teriorly widened, having their edges provided with numerous teeth; a single dorsal fin.

Delphinus delphis.—THE DOLPHIN.

Plate XXXIV. fig. 2.

Jaws of equal length, moderately elongated; from 42 to 45 pointed and bent teeth in each jaw; dorsal fin placed nearer the tail than head; upper parts black; under parts grayish-white. Eight or ten feet long. Inhabits the seas of Europe.

Sub-Genus 2.—PHOCÆNA.—No beak; muzzle short and convex; jaws with numerous teeth; having a dorsal fin.

Delphinus grampus.—THE GRAMPUS.

Colour bluish-black above, belly white; snout blunt and short, body and tail elongated. Length twenty-five feet. Inhabits the North Atlantic.

Sub-Genus 3. — DELPHINOPTERUS.—*Lacepede*. — Head obtuse; muzzle beak-formed, not elongated; number of teeth middling; without dorsal fin.

Delphinus leucas.—THE BELUGA.

Plate XXXIV. fig. 5.

Head like that of the porpoise, teeth short, blunt, nine on each side in both jaws; instead of a fin, a small dorsal eminence; colour yellowish-white. From twelve to eighteen feet long. Inhabits the Northern Seas.

Sub-Genus 4. — HETERODON.—*Lacepede*. — One tooth in each jaw, sometimes none; lower jaw larger than the upper.

Delphinus heterodon.—THE HORNFLEUR DOLPHIN.

Head round, terminated by a round depressed beak; no teeth; palate supplied with small points, or false teeth; lower jaw very thick in proportion to the upper one; spiracle orifice semilunar;

colour gray above, and whitish below. Twenty-three feet long.

Genus 5.—*MONODON.*—*Linnæus.*

Generic Character.—Incisors, $\frac{1-1}{0-0}$, no canines nor grinders; total 2. One or two large, straight, very long and pointed tusks inflated in the upper jaw; shaped like the dolphins; orifice of spiracles united on the top of the head; with a longitudinal dorsal projection.

Monodon monoceros.—*THE NARWAL.*

Plate XXXIV. fig. 4.

Body bovid; head one fourth the length of the animal; left tusk only developed, spirally twisted, half as long as the body; marbled black and gray. Twenty-two feet long. Inhabits the Northern Ocean.

TRIBE II.—*LARGE-HEADED CETACEA.*

Genus 6.—*PHYSETER.*—*Linnæus.*

Generic Character.—Lower jaw elongated, narrow, corresponding to a furrow in the upper, with from 18 to 25 thick conical teeth on each side; upper jaw broad, elevated, with bony laminæ, or having short and undeveloped teeth; orifice of spiracles united at the upper end of the snout; some species with a dorsal fin, others have simple eminences; upper part of the cranium having cartilaginous cavities, filled with oily matter, which chrystalises when cool, forming spermaceti.

Sub-Genus 1.—*CATODON.*—*Lacepede.*—Orifice of spiracles placed at the extremity of the upper part of the muzzle; without dorsal fin.

Physeter macrocephalus.—*THE GREAT-HEADED CACHALOT.*

Plate XXXIV. fig. 3.

Head very large; from 20 to 23 curved and pointed teeth in

the lower jaw ; having small conical teeth concealed in the upper gums ; tail straight and conical ; a longitudinal eminence on the back, above the anal region ; upper part of the body slate-coloured, slightly spotted with white ; belly bluish-white. Forty-six to sixty feet long. Inhabits the Northern Seas.

Sub-Genus 2.—*PHYSETER*.—*Lacepede*.—Spiracle orifice situated at the end, or near the end, of the upper part of the muzzle ; having a dorsal fin.

Physeter microps.—THE SMALL-EYED CACHALOT.

Lower jaw with 21 arched, slightly turned back teeth, on each side ; dorsal fin large, straight and pointed ; pectoral fins broad ; eyes small ; sixty to eighty feet long. Inhabits the Northern Seas.

Genus 7.—*BALÆNA*.—*Linnaeus*.

Generic Character.—Without teeth ; upper jaw keel-shaped, provided on each side with transverse horny laminæ or whale-bone, slender, serrated, and attenuated at the edges ; orifices of the spiracles separated, placed near the centre of the upper portion of the head ; some species with a dorsal fin ; and nodosities on the backs of others.

Sub-Genus 1.—*BALÆNA*.—No dorsal fin.

Balæna mysticetus.—THE COMMON WHALE.

Plate XXXIV. fig. 6.

Body thick, tail short ; without boss on the back ; upper jaw with about seven hundred transverse laminæ. From eighty to one hundred feet long. Inhabits the Atlantic and Polar Seas.

Sub-Genus 2.—*BALENOPTERA*.—With dorsal fin.

Balæna hoops.—THE JUBARTA.

Nape of neck elevated and round ; with longitudinal folds

under the throat and belly; semi-spherical tuberosities before the spiracles; dorsal fin curved backwards. Fifty-four feet long. Inhabits the Greenland Sea

CLASS SECOND.

BIRDS.

ALL the animals of this class are Oviparous; that is, they produce their young by eggs. They are distinguished from the other divisions of the animal kingdom, by being covered with feathers. To aid in their classification, the feathers have been distinguished by different names, according to the particular part of the animal which they cover.

Birds have a double respiration and circulation,—these are for adapting the animals for flight. Another admirable contrivance for this purpose is the general diffusion of air through their bodies. Their lungs are not divided, but adhere to the ribs, and are composed of a membrane penetrated by orifices, which permit the free passage of the air into the cavities of the chest, lower abdomen, the arm-pits, and even to the bones. Birds respire not only by branches of the aorta, but also by means of the pulmonary artery.

Birds are true bipeds, and can only lift things from the ground by means of their bill. The neck is much elongated, as well as the beak, which is covered with a horny substance. They are always destitute of teeth. The upper mandible is a prolongation of the intermaxillary bones: these are prolonged into two arches; the internal one of which consists of the palate bones, and the external one of the maxillary and

jugal bones; the mandible being united to the cranium by elastic laminae. The two mandibles move upon each other by means of an intermediate bone placed at their articulation.

The organ of smell is situated at, or near the base of the bill, generally hidden by the feathers.

The tongue has but little muscular substance, and is supported by a production of the hyoid bone. Most birds seem not to be possessed of a fine degree of taste.

The eyes of birds are so constructed, that their sight is very acute, whether near or at a distance. In addition to the ordinary eyelids, there is a membrane which acts like a curtain to cover the eye.

Birds which fly by day seldom have an external ear; but nocturnal birds possess that organ, although not nearly so much developed as that of quadrupeds. It is generally covered by barbed feathers, which are more fringed than those of their body.

The brain of birds agrees in character with that of the other vertebrate oviparous animals, but remarkable for its volume, being proportionally greater, and even exceeding, in many cases, that of the mammalia. This increased bulk is attributable to tubercles, which are analagous to the *corpora striata*, and not to the hemispheres themselves, which are rather compressed and without circumvolutions. The cerebellum is largely developed, nearly without lateral lobes, and consisting almost entirely of the vermiform process.

The *trachea* is formed of entire rings. At its bifurcation is a glottis, furnished with a set of muscles called the lower larynx. This organ produces the voice of birds, which has great compass owing to the large volume of air contained in the air vessels. The voice is modified by the length and width of the trachea. The upper larynx is very simple.

The anterior extremities, or wings of birds, are formed for sustaining them in flight, but are neither adapted for prehension nor standing. The body has a forward inclination, and the toes are considerably produced, to assist in sustaining them in an upright posture. The pelvis is much elongated, in order to furnish attachment to the muscles which support the trunk upon the thighs. There is also a beautiful provision in nature, by which birds are enabled to sleep with certainty perched on

trees. A set of muscles take their rise in the pelvis and extend themselves to the toes, so that the weight of the bird alone is sufficient to close them.

The lower extremities are composed of a femur, a tibia, and a peroneum which is articulated to the femur by a spring, whose extension is maintained without the muscles being exerted. The tarsus and metatarsus consist of a single bone only.

Most birds undergo two moults annually; and in some species the winter plumage differs considerably from that of the summer; and the male and female also vary in colour, in many species.

The digestive function in birds is very rapid. The stomach is composed of three parts; namely, the crop, the succentorial ventricle, and the gizzard.

CLASSIFICATION OF BIRDS.

The orders and genera into which birds are divided, are established chiefly from the formation of the bill and feet. The classification adopted is that of Temminck, who possesses a deeper knowledge of this subject than any other naturalist. It is remarkable for its simplicity. He divides this class into sixteen orders, namely,—

I. RAPACES.—Birds of prey.

II. OMNIVORES.—Those which live on all kinds of food.

III. INSECTIVORES.—Birds which feed on insects.

IV. GRANIVORES.—Birds which feed on grain.

V. ZYGODACTYLI.—Birds which have two toes before and one behind.

VI. ANISODACTYLI.—Birds which have the exterior toe joined to the middle one at the base.

VII. ALCYONES.—Birds with three toes before, united, and one behind; the tarsi being very short.

VIII. CHELIDONES.—Birds with short legs, three toes before, divided, or only united at the base by a short membrane; the back toe often reversible.

IX. COLUMBÆ.—Birds with three toes before, entirely divided, and one behind.

X. GALLINÆ.—Birds with three toes before, united by a

membrane; the back toe jointed to the tarsus above the joint of the other toes.

XI. *ALECTORIDES*.—Birds with the tarsus long and slender; three toes before and one behind; the articulation of the posterior one higher than those before.

XII. *CURSORES*.—Birds with long legs, naked above the knee, with two or three toes directed forwards.

XIII. *GRALLATORES*.—Birds with long and slender legs, more or less naked above the knee; three toes before and one behind; the posterior one joined on the same level with the others, or more elevated.

XIV. *PINNATIPEDES*.—Birds with feet of medium length; tarsi, slender, or compressed; three toes before and one behind, with a rudimentary membrane along the toes; the posterior one joined interiorly on the tarsus.

XV. *PALMIPEDES*.—Birds with short feet, more or less drawn up to the abdomen; anterior toes partly or wholly connected by a membrane; the posterior toe articulated interiorly upon the tarsus, or totally wanting in some genera,

XVI. *INERTES*.—Birds with feet retracted into the abdomen; three toes divided before; the posterior toe short, articulated interiorly.

TERMINOLOGY OF BIRDS.

It is impossible to understand the descriptions given by authors, so as to enable the student to trace with certainty various species, without being acquainted with the technical names of the different parts of Birds.

Within these few years a new nomenclature has been adopted, so that to be an expert Ornithologist, a knowledge of the old as well as the new terminology is indispensable.

OLD TERMINOLOGY.

Plate XXXV. fig. I.

The *AURICULARS*, or feathers which cover the ears, 1.

The CROWN, 2.

The NAPE, 3.

Upper and under mandibles, or chaps, 4-4.

Chin, 5.

The interscapular region, 6.

Tail coverts ; these feathers cover the tail at its upper side or base, 7.

LESSER WING COVERTS, 8-8-8-8, — (*tectrices primæ*, *Linnaeus*.) — these are small feathers that lie in several rows on the bones of the wings.

GREATER WING COVERTS, 9-9-9-9, — (*tectrices secundæ*, *Lin.*) — the feathers that lie immediately over the quill feathers and the secondaries.

The SCAPULARS, 10-10-10, or those feathers which take their rise from the shoulders, and cover the sides of the back.

The SECONDARIES, 11-11-11-11, or secondary quills, — (*secundariæ*, *Linn.*) — those that rise from the second bone.

The TERTIALS, 12-12-12-12-12. — These also take their rise from the second bone at the elbow joint, forming a continuation of the secondaries, and seem to do the same with the scapulars which lie over them. These feathers are so long in some species of the *Scolopax* and *Tringa*, that when the bird is flying, they give it the appearance of having four wings, as in the figure we have given. In nearly all other species they are but a little longer than the SECONDARIES.

The PRIMARIES, or PRIMARY QUILLS, 13-13-13-13-13, — (*primores*, *Linn.*) — the largest feathers of the wing ; they rise from the first bone.

The SHOULDER, 14-14.

The BASTARD WINGS, or SPURIOUS WINGS, 15-15-15-15.

The RUMP, 16.

MIDDLE TAIL FEATHER, 17.

The VENT feathers, 18.

The THIGH, 19.

The knee joint, 20.

The leg, 21.

The UNDER COVERTS are those which line the inside or under surface of the wings.

Figure II.

The CERE—(*cera*, Linn.)—the naked skin which covers the base of the bill, 1.

The ORBITS—(*orbita*, Linn.)—the skin which surrounds the eye. It is generally bare, as in Parrots and the Heron, &c. 2.

A NOTCHED Mandible, 3.

Figure III.

According to the new nomenclature, the principal parts of Birds are eight, as follow:—

- I. The ROSTRUM, bill or beak, which is divided into 3 parts. {
1. *Maxilla*, upper part, or mandible of the bill, fig. III. *a*.
 2. *Mandibula*, the lower mandible, *b*.
 3. *Gongs*, point of the Mandibula, *c*.

The beak is again subdivided into 5 parts.

- {
1. *Nares*, the nostrils, fig. II. *a*.
 2. *Dertrum*, the hook, fig. II. *b*.
 3. *Culmen*, the ridge, fig. IV. *b*.
 4. *Mesorhinium*, the upper ridge, *d*.
 5. *Cera*, the wax or cere on the bill, fig. II. 1. and fig. IV. *c*.

II. CAPUT, the head, which is divided into 18 parts.

- {
1. *Lorum*, the naked line at the base of the bill, fig. III. *d*.
 2. *Lingua*, the tongue.
 3. *Frons*, the forehead, fig. III. *e*. fig. II. *c*.
 4. *Capistrum*, the face, fig. I. *a*.
 5. *Sinciput*, the hinder part of the head, fig. III. *f*.
 6. *Corona*, the crown of the head, fig. III. *g*.
 7. *Regio Ophthalmica*, region of the eyes, *h*.
 8. *Oculus*, the eye.
 9. *Orbitæ*, the orbits or centre of the eyes.
 10. *Tempora*, the temples, *i*.
 11. *Supercilium*, the eye-brows, *j*.
 12. *Gena*, the cheek, *k*.
 13. *Crista*, the crest, fig. II. *d*.
 14. *Cornua*, the horns, as exemplified in the horned owls, consisting of upright bunches of feathers.
 15. *Barba*, the beard, fig. III. *l*.
 16. *Mentum*, the chin, *m*.
 17. *Aures*, the ears, *n*.
 18. *Regio parotica*, the protuberance behind the ear, *o*.

III. COLLUM, the neck, which is divided into 2 parts.

- | | | | |
|---|---|---|---|
| { | 1. <i>Cervix</i> , the hinder part of the neck, which includes 2 parts, from <i>p</i> to <i>q</i> . | { | 1. <i>Nucha</i> , nape of the neck, <i>p</i> . |
| | 2. <i>Guttur</i> , the throat, which is subdivided into 4 parts. | | 2. <i>Auchenium</i> , part below the nape, <i>q</i> . |
| { | | { | 1. <i>Carunculæ</i> , or wattles, the fleshy substances under the throat of the cock, &c. |
| | | | 2. <i>Gula</i> , the gullet, <i>r</i> . |
| | | | 3. <i>Jugulum</i> , the lower part of the throat, <i>s</i> . |
| | | | 4. <i>Saccus jugularis</i> , the crop. |

IV. DORSUM, the back, which is divided into 5 parts.

- | | |
|---|--|
| { | 1. <i>Interscapulum</i> , between the shoulders, <i>t. t</i> . |
| | 2. <i>Humeri</i> , the shoulders, <i>u</i> . |
| | 3. <i>Tergum</i> , the middle of the back, <i>v</i> . |
| | 4. <i>Scapulares</i> , the scapulars, <i>w</i> . |
| | 5. <i>Uropygium</i> , the rump, or tail coverts, <i>x</i> . |

V. CORPUS, the body, which is divided into 7 parts.

- | | |
|---|--|
| { | 1. <i>Pectus</i> , the breast, <i>A</i> . |
| | 2. <i>Axillæ</i> , the arm-pits, <i>B</i> . |
| | 3. <i>Abdomen</i> , the abdomen, <i>C. C. C</i> . |
| | 4. <i>Hypochondria</i> , the sides of the abdomen, <i>D. D</i> . |
| | 5. <i>Epigastrium</i> , the stomach, <i>E</i> . |
| | 6. <i>Venter</i> , the belly, <i>F. F</i> . |
| | 7. <i>Crissum</i> , the vent, <i>G</i> . |

VI. ALA, the wing, which is divided into 7 parts.

- | | |
|---|--|
| { | 1. <i>Flexura</i> , the bend of the wing, <i>H</i> . |
| | 2. <i>Tectrices majores</i> , largest wing-coverts, <i>I. I</i> . |
| | 3. <i>Tectrices medæ</i> , middle wing-coverts, <i>J. J</i> . |
| | 4. <i>Tectrices minores</i> , smallest wing-coverts, <i>K. K</i> . |
| | 5. <i>Primariæ</i> , quills, <i>L. L</i> . |
| | 6. <i>Remiges</i> , rowers, <i>M</i> . |
| | 7. <i>Alula spuria</i> , bastard wing, <i>N</i> . and fig. I. 15. |

VII. CAUDA, the tail, has 2 parts.

- | | | |
|---|--|--------------------------------|
| { | 1. { <i>Rectrices intermedia</i> , or
<i>Tectrices cauda intermedia</i> . } | Middle tail feathers,
O. |
| | 2. { <i>Rectrices laterales</i> , or
<i>Tectrices caudæ laterales</i> . } | Side tail feathers, <i>P</i> . |

- VIII. CRUS, the leg, which is divided into 3 parts. {
- 1. *Femora*, the thighs, *Q*.
 - 2. *Tibia*, the part from the foot to the thigh, which contains 3 parts, *R*. {
 - 1. *Acrostarsium*, the front of the leg, *S*.
 - 2. *Planta*, the back of the leg, *T*.
 - 3. *Calcarea*, the spurs, as in the domestic cock.
 - 3. { *Pes*, or { The foot, which contains 3 parts. {
 - 1. *Digiti*, the toes, *U*.
 - 2. *Hallux*, the great or hind toe, *W*.
 - 3. *Ungues*, the claws, *V*.

The bones of the wing are, first, the *Brachium*, fig. V. *A. A.*—second, the *Cubitus*, *B. B.*—third, the *Carpus*, *C. C.*—fourthly the spurious wing bone, *D*.

ORDER I.—RAPACES.

Bill short, robust; base of the upper mandible covered by a membrane or cere; sides compressed; point hooked; nostrils open; legs very strong, muscular, and short; occasionally of medium length, covered with feathers to the knee in some species, and to the toe in others; feet with three toes before and one behind; divided, or united at the base by a membrane; rough below; claws powerful, hooked, sharp, and retractile.

Genus 1.—VULTUR.—*Illiger*.

Generic Character.—Bill thick, short, its depth greater than its breadth; covered at its base by a cere; upper mandible nearly straight, bent downwards near its point; lower mandible straight, rounded, inflected at the point; head in some species naked, in others covered by a short down; nostrils lateral, naked, and opening obliquely towards the margin of the cere; legs robust, provided with slightly bent talons; the middle toe longest, and united at the base with the exterior one.

Vultur fulvus.—THE FULVOUS VULTURE.

Plate XXXVI. fig. 1.

Head and neck covered with white down; the bottom of neck surrounded by a thick ruff or collar, of upright, slender, pale ferruginous feathers; on the breast is a white spot; body and wings rich fawn-colour; tail blackish-brown; beak dull yellow; cere red; irides hazel; legs gray. Four feet long. Inhabits Europe, Asia, and Africa.

Genus 2.—CATHARTES.—*Illiger*.

Generic Character.—Bill long, straight, compressed, bent towards the point; cere naked, extending more than half the length of the beak; upper mandible tumid towards the tip; head naked and oblong; upper part of the neck divested of feathers; the nostrils nearly in the centre of the beak, close to the ridge of the upper mandible, cleft longitudinally, broad, and sometimes surmounted by fleshy appendages; legs with the tarsus naked, more or less slender; middle toe long, and united to the exterior one at the base.

• *Cathartes gryphus*.—THE CONDOR.

Plate XXXVI. fig. 2.

Colour blackish-brown; neck ruff, and a spot on the wings white; upper caruncle rather large, not indented; a wattle under the beak like that of the cock; female devoid of caruncles. Three feet three inches long; expanse of wings three feet nine inches. Inhabits South America.

Genus 3.—GYPÆTUS.—*Storr*.

Generic Character.—Beak long; upper mandible arched towards its tip, and hooked; nostrils ovate, concealed by stiff reflexed hairs; feet short, with four toes, the three anterior united by a short membrane; the middle one considerably longer than the others; talons slightly hooked; wings long.

Gypætus barbatus.—THE BEARDED VULTURE.

Plate XXXVII. fig. 8.

Blackish on the back, with a white line down the middle of each feather; neck and upper part of the body bright yellow; head surrounded by a black fillet. Expanse of wings about eight feet. Inhabits Egypt, Abyssinia, and the German and Swiss Alps.

Genus 4.—GYPOGERANUS.—*Illiger*.

Generic Character.—Beak shorter than the head, thick, strong, hooked, and bent from its base, somewhat arched and compressed at the point; with a cere at its origin; nostrils within the cere, lateral, a little separated at the base, oblong, open, and placed diagonally; legs very long and slender; tibia feathered, tarsus very long, tapering downwards; toes short, robust, and warty below, the anterior one united at the base; the hallux articulated on the tarsus; wings long, the first five quills longest, and nearly equal; carpus of the wings armed with a blunt spur.

Gypogeranus serpentarius.—THE SECRETARY, OR SERPENT EATER.

Plate XXXVII. fig. 9.

Ash-coloured, breast with longitudinal black streaks; tail wedge-shaped, middle tail feathers longer than the others; head with a pendant crest; eyes surrounded by a bare orange-coloured skin. Size of a stork. Inhabits the Cape of Good Hope.

Genus 5.—POLYBORUS.—*Vieillot*.

Generic Character.—Beak somewhat elongated, deep, compressed laterally, and strongly hooked at the tip of the upper mandible; cere hispid, continued over the cheeks and around the eyes; nostrils narrow, elliptical, oblique, and placed near the upper edge of the beak; wings somewhat rounded, nearly as long as the tail; third and fourth quills longest; legs long, naked, and reticulated; claws of moderate length and curvature.

Polyborus vulgaris.—THE CARACARA EAGLE.

Plate XXXVIII. fig. 1.

Upper parts blackish-brown ; head black ; feathers capable of being elevated to a crest ; neck, breast, and shoulders, brownish-gray, with transverse wavy bars of darker brown ; tail white, with undulated dusky bands, and a broad black band at its tip ; beak blue at the base, horny-colour at the tip ; iris hazel ; cere and cheeks dull red ; legs yellow ; claws black. Twenty-one inches long. Inhabits Brazil.

Genus 6.—HARPYIA.—Cuvier.

Generic Character.—Beak much incurved ; upper mandible very thick at the base, and continues straight for more than a third of its length, from whence it suddenly curves downwards, and is much arched towards the point, which is extremely sharp ; lower mandible, straight, short, and obtuse ; nostrils transverse and ovate ; wings very short, reaching only to the middle of the tail ; tail rounded at its extremity ; legs partially feathered on their upper part ; toes and talons very strong.

Harpyia destructor.—THE GREAT HARPY.

Plate XXXVIII. fig. 2.

Head slate-gray ; back part furnished with a crest of long, broad, black feathers, margined with gray, increasing in length to the middle line of the head ; fore part of the neck with a black collar ; back and wings black ; under parts pure white ; tail white, crossed by transverse black bands, with the four alternating ; ash-coloured or whitish spaces ; tip light ash-colour ; beak and claws black ; legs dull yellow, and very robust. Length from the beak to the tail three feet and a half. Inhabits South America.

Genus 7.—AQUILA.—Brisson.

Generic Character.—Head much flattened above, which, with the neck, is plumed ; eyes deeply sunk ; beak thick, powerful, and straight at its base ; somewhat angular above, and strongly

hooked at the point; nostrils short, and nearly circular; cere hispid; wings as long as the tail, with the third and fourth quills the longest; legs very strong, clothed with feather to the base; toes robust, of moderate length, the outer one united to the middle; talons strong, incurved, and channelled on their under surface.

Aquila fulvus.—THE GOLDEN EAGLE.

Plate XXXVI. fig. 3.

Crown of the head and nape pale orange-brown; all the upper surface dusky-brown; beak blue at the base, and black at the tip; cere, lemon-yellow; irides, orange-brown; quills black, secondaries dark brown; toes yellow; claws black. Female, three feet and a half long; male a third less. Inhabits Europe.

Genus 8.—HALIAËTUS.—*Vieillot*.

Generic Character.—Ridge of the beak convex and compressed; upper half of the tarsi with short, close set feathers, and scutellated on their anterior surface; cere slightly hispid; wings long and powerful; toes free; outer one capable of taking a retroverted direction; talons of equal size, much bent, and furnished with a deep internal groove.

Haliaëtus albicilla.—THE GREAT SEA EAGLE.

Plate XXXVI. fig. 4.

Dusky-brown above, intermixed with ashy-gray, spotted with umber-brown; under parts same colour but paler; tail white; cere and legs pale yellow; talons black. Two feet four inches long. Inhabits Europe.

Haliaëtus arundinaceus.—THE OSPREY.—*Gmelin*.

Plate XXXVI. fig. 5.

Umber-brown above, white beneath; feathers on the head edged with white; wings extending beyond the tail; cere and legs blue; beak black; iris yellow. Twenty-one inches long. Inhabits Europe.

Genus 9.—FALCO.—*Linnæus*.

Generic Character.—Beak hooked, generally bent from its base, which is furnished with a somewhat hairy cere; mandibles notched in some species; nostrils lateral, rounded, or oval, open, and placed within the cere; tarsus covered with feathers or scales; three toes before and one behind, the exterior usually united at its base to the middle toe; talons sharp, much hooked, and retractile.

SECTION 1.—FALCONS.—Beak short, bent from its base; upper mandible with one, and sometimes with two notches, which fit into hollows in the under mandible; legs robust; toes long, strong, talons sharp and hooked; tarsus short; wings long, first and third quill feathers of equal length, the second quill being the longest.

Falco tinnunculus.—THE KESTREL.—*Female*.

Plate XXXVII. fig. 7.

Upper parts of the female reddish-burnt Sienna-brown, with numerous black arrow-shaped spots and bars; tail with a broad bar near its tip; breast, abdomen, and thighs, buff-orange, spotted with brownish-black; quills bistre-coloured, margined with white. Fourteen inches long. Inhabits Europe.

SECTION 2.—HAWKS.—Wings short, terminating at two-thirds the length of the tail; first quill shorter than the second, the third nearly equal to the fourth; tarsus as long as the intermediate toe; claw greatly hooked, and sharp.

Falco palumbarius.—THE GOSHAWK.

Plate XXXVI. fig. 8.

Upper parts bluish ash-colour, under parts white, transversely barred with dark brown; tail ash-coloured, with from four to five bars of dark brown; beak blue black; cere greenish-yellow; iris and feet bright yellow. Length of female two feet; male a third less. Inhabits Europe.

Falco nisus.—THE SPARROW-HAWK.—*Female*.

Plate XXXVI. fig. 7.

Upper parts slate colour; neck with a white spot; under parts white, with brown undulated bars; tail ash-gray, with five darker bars; cere greenish-yellow; feet and iris yellow. Twelve inches long; male a third less, brown and barred all over. Inhabits Europe.

Sub-Genus 3.—KITES.—With oblique nostrils, having a fold at their exterior margin; tarsus short, feathers extending a little under the knee; wings very long, the third and fourth quills longest; tail forked.

Falco milvus.—THE KITE, OR GLED.

Plate XXXIX. fig. 1.

Head and neck grayish-white, streaked with lines of dusky-black; upper parts of the body and wings orange-brown; under parts bright orange, with indistinct bars of black; tail long, much forked, thighs with long plumes; tarsus short and scaled. Two feet two inches long. Inhabits Europe.

Sub-Genus 4.—BUZZARDS.—Beak small, and bent from the base; wings somewhat shorter than the tail, the first four feathers notched near their tip; first quills very short, the fourth being the longest; feathers on the thighs long and pendulous; tarsus short, talons slightly hooked.

Falco buteo.—THE COMMON BUZZARD.

Plate XXXVI. fig. 6.

General plumage rusty-brown above, white and rusty beneath; cere, iris, and legs dull yellow. Twenty-one inches long. Inhabits Europe.

Sub-Genus 5.—HARRIERS.—Beak bent from its base; nostrils ovate; tail long, rounded; wings long, first quill very short, the third and fourth longest; tarsus long and slender.

Falco cyaneus.—THE HEN-HARRIER.

Plate XXXVII. fig. 3.

Upper parts bluish-gray, under parts pure white; without spots or streaks; quills black; legs and toes lemon yellow. Length eighteen inches. Inhabits Europe and America.

Sub-Genus 6.—CARACARÆ.—Cheeks and throat naked.

Falco formosus.—THE RED-THROATED FALCON.

Plate XXXVII. fig. 4.

Upper parts dark liver-coloured brown; abdomen Indian red; throat purple; cere, orbits, and feet, dull yellow. Eighteen inches long. Inhabits South America.

Sub-Genus 7.—CYMINDI.—Tarsi short, toes semi-webbed.

Falco uncinatus.—THE HOOKED EAGLE.

Plate XLVI. fig. 3.

Lead-coloured above, paler below; quills with fillets of dark brown; base of tail white; beak considerably hooked. Fifteen inches long. Inhabits Brazil.

Genus 10.—STRIX.—*Linnæus*.

Generic Character.—Beak compressed, bent from its origin; base surrounded by a cere, covered wholly, or in part, by stiff, erect hairs; head large, much feathered; nostrils lateral, rounded, open, pierced in the anterior margin of the cere, concealed by hairs directed forwards; eyes very large; orbits surrounded by feathers; legs feathered, frequently to the talons; feet with three toes before and one behind, separate; the anterior reversible; first quills dentated on their anterior border, the third longest.

Sub-Genus 1.—NOCTUA.—*Savigny*.—Without tufts on the head; ears small; disc of feathers surrounding the eyes, small.

Strix nyctea.—THE SNOWY OWL.

Plate XXXVIII. fig. 3.

Snowy white, with transverse bars of brown; tail short; head very small; irides yellow; beak black, much curved; feet feathered to the talons, which are black. Female two feet in length. Inhabits Europe and America.

Sub-Genus 2.—*STRIX*.—*Savigny*.—Ears large, wide and open, furnished in front with a broad membranous operculum; discs around the eyes large; beak nearly straight from its base, and arched towards the point; legs covered with slender feathers.

Strix flammea.—THE BARN OWL.

Plate XXXIX. fig. 3.

Head, back, and wings, pale chestnut, beautifully speckled with white, and very fine gray and brown spots, intermixed with white; under parts snowy white, with a few distant spots of brown; bill horn-colour; feet and toes covered with short hairs; iris yellow. Thirteen inches long. Inhabits Europe.

Strix stridula.—THE TAWNY OWL.

Plate XXXIX. fig. 4.

Upper parts tawny, speckled with dark brown and black; with three rows of white spots on the wing coverts; breast and belly pale yellow, marked with narrow dark streaks pointing downwards; talons large, white, and much hooked. Fifteen inches long. Inhabits Europe.

Sub-Genus 3.—*BUBO*.—*Gerin*.—Beak strongly inclined from the base; nostrils large, oblique, and concealed; ears of moderate size; head surmounted by tufts of feathers, somewhat resembling horns.

Strix otus.—THE LONG-EARED OWL.

Plate XXXIX. fig. 2.

Upper parts ochraceous yellow, streaked with black, and

speckled with ash-colour and white ; beneath, the feathers are tinged with light ferruginous ; tail cream white, barred with black and cinereous ; bill black ; irides orange-yellow ; legs and toes covered with a buff-coloured down ; claws dusky. Thirteen inches long. Inhabits Europe and America.

ORDER II.—OMNIVOROUS BIRDS.

Beak robust, medium-sized, and sharp on the edges ; upper mandible more or less convex, and notched at the point ; feet with four toes, three before and one behind ; wings of medium length ; quill feathers terminating in a point.

Genus 1.—OPISTHOCOMUS.—Illiger.

Generic Character.—Bill short, thick, convex, bent downwards at point ; base dilated laterally ; under mandible strong ; angular at its termination ; nostrils near the middle of the bill, covered by a membrane ; legs strong ; tarsus, shorter than the middle toe ; toes edged by a rudimentary membrane ; first quill short, the next four graduated, and the sixth longest.

Opisthocomus cristatus.—THE HOATZIN.

Plate LI. fig. 7.

White above and black beneath ; head with a long somewhat pendulous crest ; a naked rufous space round the eyes ; wings with two paler bands ; tail wedge-shaped ; with a fillet of yellow. Twenty-two inches long. Inhabits Guiana.

Genus 2.—BUCEROS.—Linnæus.

Generic Character.—Bill large, long, convex ; curved from its base ; edges serrated, with a large horny protuberance near the base of the upper mandible rising into a crest ; nostrils be-

hind the base of the bill, covered by a membrane ; legs robust, short ; lateral toes equal ; the external one united to the second joint ; first three quills graduated, the fourth or fifth longest.

Buceros monoceros.—THE MALABAR HORNBILL.

Plate XL. fig. 1.

Black above, extending to the bottom of the jugulum, breast and thighs white ; middle tail feathers black, external feathers white ; bill pale yellow ; horny crest black in front and yellow behind. Two feet long. Inhabits Malabar.

Genus 3.—PRIONITES.—*Illiger*.

Generic Character.—Bill strong, hard, middle-sized, convex above, and hooked towards its point, where it is compressed ; edges of the mandibles serrated ; nostrils lateral, oblique. situated at the base of the bill, open, but partially covered by feathers ; toes lateral, unequal, the internal one being very short, joined at its base ; the external united to the second joint ; wings short ; the first three quills graduated, the fourth and fifth longest.

Prionites ruficapillus.—THE RED-HEADED SAW-BILL.

Plate XXXVII. fig. 6.

Head reddish-brown, back and wings brownish-green ; primaries and tail verdigris-colour, greenish above ; abdomen ferruginous ; a black patch around the eyes ; bill horn-colour. Fourteen inches long. Inhabits Paraguay.

Genus 4.—CORVUS.—*Linnaeus*.

Generic Character.—Bill thick, straight at its base, slightly bent towards the point ; nostrils concealed by reflected bristly feathers ; legs and feet plaited ; feet with three toes before and one behind, divided, the tarsus longer than the middle toe : wings pointed, the fourth quill being the longest.

Corvus corax.—THE RAVEN.

Plate XXXIX. fig. 5.

Black and glossy, back shining with an iridescent lustre, of blue and purple; tail nearly rounded; iris with a double circle of gray and brown. Two feet long. Inhabits Europe and America.

Corvus cornix.—THE HOODED CROW.

Plate XXXIX. fig. 6.

Head, throat, wings, and tail, iridescent-black; rest of the plumage ash-coloured; irides brown; bill and feet black. Twenty-one inches long. Inhabits Europe and Asia.

Corvus monedula.—THE JACK-DAW.

Plate XXXIX. fig. 7.

Sooty-black; crown deep iridescent-black; occiput and upper part of the neck cinereous; irides light bluish-gray. Thirteen inches long. Inhabits Europe.

Genus 5.—GARRULUS.—Vieillot.

Generic Character.—Bill of medium size, robust, edges thin and cutting, beset with setaceous feathers at its base, pointing outwards; upper mandible hollow, and curved towards the point; nostrils hid by basal feathers; tarsus annulated; middle toes attached from the base of the exterior, but completely separated from the interior toe; wings of medium length; bastard feathers short, rounded at their extremities; the three first remiges equal, the fourth and fifth quills longer than the others; tail wedge-shaped, consisting of twelve feathers.

Garrulus pica.—THE MAGPIE.

Plate XXXIX. fig. 8.

Plumage iridescent-black, except the venter and scapulars, which are pure white; the wings and tail exhibit strong variation of colour of blue, green, and purple; bill black; irides

hazel ; tail long, cuneiform, the outer feathers being only about half the length of the middle ones. Length eighteen inches. Inhabits Europe and America.

Garrulus glandarius.—THE JAY.

Plate XXXIX. fig. 9.

Back reddish-ash colour ; head white, with black streaks ; wing coverts barred with blue and black ; bill and tail black ; irides clear blue ; legs and feet dark reddish-brown. Thirteen inches long. Inhabits Europe.

Genus 6.—QUISCALUS.—Vieillot.

Generic Character.—Bill smooth, straight, robust, and somewhat compressed at the base ; edge angular, bent inwards ; upper mandible forming an acute angle, with the feathers of the head tapering towards its point ; nostrils dilated, oval, covered by the membrane ; tarsus annulated ; middle toe attached to the exterior one the length of the first phalange, but quite separate from the interior one ; wings medium length ; first and fifth remiges of equal length, the third and fourth the longest ; tail with twelve feathers.

Quiscalus major.—THE GREAT CROW GRACLE.

Plate XXXVIII. fig. 4.

Black ; head and neck highly iridescent ; upper parts reflecting copper-green, under parts steel-blue ; tail wedge-shaped ; bill black ; irides pale-yellow. Sixteen inches long. Inhabits the United States.

Genus 7.—NUCIFRAGA.—Brisson.

Generic Character.—Bill long and straight, tapering to a point ; upper mandible rounded, and longer than the under one, point obtuse and flattened ; nostrils round, open, situated at the base of the bill, hid by hairs, which point forward ; three toes before, and one behind ; tarsus longer than the middle toe ; wings pointed, fourth quill the longest.

Nucifraga caryocatactes.—THE NUT-CRACKER.

Plate XXXIX. fig. 11.

Rusty-brown, speckled with triangular spots; crown of the head and wings darker brown; tail terminated with white; irides hazel; bill, feet, and claws, black. Thirteen inches long. Inhabits Europe.

Genus 8.—PYRRHOCORAX.—Cuvier.

Generic Character.—Bill medium size, compressed, and slender, slightly bent, with a small notch, or smooth; nostrils ovate, lateral, placed at the base of the bill, and hidden; legs long, strong, and naked below the knee; toes almost entirely separated; tarsus longer than the middle toe; claws strong and bent; wings wedge-shaped, the fourth and fifth quills longest.

Pyrrhonorax graculus.—THE RED-LEGGED CROW.

Plate XLI. fig. 4.

Deep iridescent-black; wings long; tail square; bill long, arched, and pointed, and of a bright scarlet; legs same colour; soles of feet black; irides brown. Sixteen inches long. Inhabits Europe.

Genus 9.—BARITA.—Cuvier.

Generic Character.—Bill long, strong, convex above, and notched towards the tip; with a nasal furrow; nostrils longitudinal, covered above, and half closed by a horny substance; legs strong; tarsus longer than the intermediate toe; the external one united to the first joint; the internal toe free; hallux very strong; wings of medium length; the fourth or sixth quills longest.

Barita strepera.—THE BLACK BARITA.

Plate XL. fig. 2.

Black; primaries white at the base; lower coverts of the wings and tail white; tail elongated, round, the feathers white

at their base ; apex black ; wings reaching to the middle of the tail ; feet black. Nineteen inches long. Inhabits Norfolk Island.

Genus 10.—GLAUCOPIS.—Forster.

Generic Character.—Bill thick, robust, of medium size ; upper mandible convex, arched, curved towards the point ; it envelops the edges of the lower mandible, which has a fleshy wattle at its base ; nostrils at the base of the bill ; legs strong ; tarsus longer than the middle toe ; hallux with a crooked nail.

Glaucopis cinerea.—THE WATTLE BIRD.

Plate XLIII. fig. 5.

Dark bluish ash-coloured ; tail wedge-shaped ; bill black, with reddish-blue wattles at its base, which change to scarlet like those of the turkey. Fifteen inches long. Inhabits New Zealand.

Genus 11.—GRACULA.—Linnæus.

Generic Character.—Bill middle size, strong, convex above, considerably compressed and narrow at the point, and notched in some of the species ; nostrils open, lateral, and partially hid by the feathers ; legs strong ; tarsus the length of the middle toe ; external toe attached at its base ; the internal one separated ; hallux short ; third quill longest.

Gracula religiosa.—THE SACRED MINO.

Plate XL. fig. 3.

Iridescent black, changing in different lights to violet, blue, and green ; with a white spot on the head, and a yellow, narrow, occipital band ; a white spot on the middle wing feathers ; bill red ; irides hazel ; legs and feet yellowish-orange ; claws light brown. Ten inches and a half long. Inhabits India.

Genus 12.—BUPHAGA.—Linnæus.

Generic Character.—Bill thick, obtuse, and strong, gibbous

at point ; the under mandible strongest ; nostrils at the base of the bill, half covered by an arched membrane ; tarsus longer than the middle toe ; wings of medium length ; first quills very short, second nearly as long as the third.

Buphaga Africana.—THE AFRICAN OX-PECKER.

Plate XXXVII, fig. 1.

Upper parts rust-coloured, under parts pale ; feathers of the tail somewhat acuminate. Six inches and a half long. Inhabits Africa.

Genus 13.—BOMBYCIVORA.—*Temminck*.

Generic Character.—Bill thick, depressed, and trigonal at its base, convex below ; upper mandible a little curved towards the point, with a slight notch ; nostrils ovoid, open, situated at the base of the bill, hidden by hairs which incline forward ; three toes before and one behind, the exterior one joined to that of the middle ; wings of moderate length, the first and second quills the longest.

Bombycivora garrula.—THE BOHEMIAN WAX-WING.

Plate XXXIX, fig. 10.

Head crested ; crest, neck, back, and breast, chestnut colour ; rump, tail coverts, and hypochondria, ash-colour ; crissum orange-yellow ; forehead and cheeks reddish-brown ; middle wing-feathers purplish-brown ; remiges and quills dusky, which, with the middle wing feathers, have spots of white ; four of the secondaries have bright scarlet appendages ; tail dusky, broadly tipped with yellow at its base ; from the base of the bill, which is black, extending around the ophthalmic region, is a velvety black line. Length eight inches. Inhabits Europe, America, and Asia.

Genus 14.—PTILONORYNCHUS.—*Khul*.

Generic Character.—Bill strong, short, depressed at the base, slightly bent, and with a small notch at the point ; nostrils late-

ral, round, at the base of the bill, hidden by feathers; legs strong, short; tarsus longer than the middle toe, which is attached to the exterior one the length of the first phalange; posterior claw strong, curved; the fourth and fifth quill longest.

Ptilonorynchus nuchalis.—THE RUFFED PTILONORYNCHUS.

Plate XXXVIII. fig. 6.

Head and upper parts of the body and wings grayish brown, those on the head having a satiny lustre; nape of the neck with a pink or purplish red band, surrounded by a ruff of shining plumes, with their tips round and turning inwards; lower parts of the body yellowish-gray, tinged with brown; legs brownish-black. Length seventeen inches. Inhabits New Holland.

Genus 15.—CORACIAS.—*Linnaeus*.

Generic Character.—Bill straight, compressed, deeper than broad; the upper mandible bent near its tip; nostrils lateral and linear; legs short and strong; three toes before and one behind, entirely free; wings long, the second quill feather longer than the first.

Coracias garula.—THE GARRULOUS ROLLER.

Plate XL. fig. 4.

Bill black, with bristles at its base; head, neck, breast, and belly, light glossy green; back and scapulars reddish-brown; greater wing-coverts pale green; minores and points of the wings of a rich deep blue; quills dusky, inclining to black, mixed with deep blue; tail coverts and tail dusky green and pale blue, tipped with black; legs short, dull yellow. Thirteen inches long. Inhabits Europe.

Genus 16.—COLARIS.—*Cuvier*.

Generic Character.—Bill strong, short, depressed, dilated on the sides, greatly broader than deep, ridge rounded, tip bent, sometimes with a notch; under mandible somewhat concealed

by the upper one ; nostrils at the base of the bill, diagonal and long, half covered by a feathered membrane ; legs short ; tarsus shorter than the intermediate toe ; the anterior ones attached at their base ; wings long, the second quill longer than the others.

Colaris Afræ.—THE AFRICAN COLARIS, OR ROLLER.

Plate XLIII. fig. 1.

Reddish-brown above, lower parts lilac-coloured ; tail dark green, tipped with bluish-black. Eight inches long. Inhabits Africa.

Genus 17.—ORIOIUS.—*Temminck*.

Generic Character.—Bill long, slightly bent from its base, where it is compressed ; upper mandible surmounted by a ridge, slightly notched at the point ; nostrils at the base of the bill, exposed, lateral, and horizontal ; tarsus shorter than the middle toe, in some species it is of the same length, and is joined to the exterior toe ; first quills very short, the third the longest.

Oriolus galbula.—THE GOLDEN ORIOLE.

Plate XL. fig. 5.

Body and point of tail rich golden yellow ; wings, tail, and cere, black ; quills edged with white, which, with the secondaries, are tipped with yellow ; bill orange-yellow ; irides red ; eyes surrounded by a black patch, extending to the base of the bill ; legs gray. Ten inches long. Inhabits Europe and Africa.

Genus 18.—ICTERUS.—*Temminck*.

Generic Character.—Bill long, sometimes more than the length of the head, shape of an elongated cone, pointed, sharp, and somewhat compressed, having no distinct ridge or notch, base enveloped in feathers, margins inflected ; nostrils at the base of the bill, lateral, and covered by a horny plate ; tarsus at least the length of the middle toe ; wings long, the third and fourth quills longest.

Ichterus icterocephalus.—THE YELLOW-HEADED TROOPIAL

Plate LV. fig. 6.

Black ; head, neck, and breast, golden yellow ; a black patch round the eyes ; bill horn colour ; some of the exterior wing-coverts pure white, tipped with black ; tail four inches long slightly rounded ; legs and feet black. Ten inches and a half long. Inhabits the United States.

Genus 19.—YPHANTES.—Vieillot.

Generic Character.—Bill polished, nearly straight, pointed, slender ; the edge straight ; the upper mandible forming the base of a pointed cone ; enveloped in feathers ; nostrils dilated, covered by a membrane ; tarsus short, annulated ; wings medium length, second and third quills longer than the others ; tail with twelve feathers.

Yphantes Baltimoreus.—CATESBY'S BALTIMORE.

Plate XXXVII. fig. 5.

Head, throat, and upper parts of the wings, black ; lower interseapulum, tergum, and whole under parts, bright orange, deeper on the breast ; exterior edges of the greater wing-coverts, and part of the primaries, white ; tail slightly forked, exterior feathers shorter than the others ; bill black, lower mandible blue towards the base. Seven inches long. Inhabits the United States.

Genus 20.—STURNUS.—Linnaeus.

Generic Character.—Bill straight, subulated, angulated, depressed, and somewhat obtuse ; the base of the upper mandible resting on the forehead ; nostrils lateral, situated at the base of the bill, and partly closed by an arched membrane ; wings long, the first quill very short, the second and third longest ; tarsus longer than the middle toe ; feet with three toes before and one behind, the exterior joined at its base to the middle one.

Sturnus vulgaris.—THE STARLING, OR STARE.

Plate XL. fig. 6.

Body black, with a copper lustre, beautifully speckled with reddish-white triangular spots; lower tail-coverts edged with white; bill rich yellow; legs skin-coloured. Eight inches long. Inhabits Europe.

Genus 21.—PASTOR.—*Temminck*.

Generic Character.—Bill elongated, conical, considerably compressed, somewhat arched and edged, and slightly notched; nostrils at the base of the bill, lateral, ovoid, partly closed by a feathered membrane; legs strong; feet with three toes before and one behind, the exterior attached at the base to the middle one; first quills very small, second and third longest.

Pastor roseus.—THE ROSEATE PASTOR.

Plate XLIII. fig. 4.

Head with a pendant crest, which, with the neck and upper parts of the breast, are of a velvet black, with iridescent reflections; the back and belly of a fine rosy hue; wings and tail brownish-black; under tail-coverts and thighs black; irides deep brown; legs flesh-red. Eight inches long. Inhabits Asia and Africa; visits Spain, Italy, and England.

Genus 22.—PARADISEA.—*Linnaeus*.

Generic Character.—Bill of medium size, quadrangular, and somewhat convex above, compressed, having a ridge between the frontal feathers; legs short; tarsus longer than the middle toe; lateral toe stronger and longer than the rest; wings with first five quills graduated, the sixth and seventh longest.

Paradisæa apoda.—THE GREAT BIRD OF PARADISE.

Plate XL. fig. 7.

Cinnamon-coloured; head and throat iridescent golden-green; side feathers very long, slight of texture, and fawn-coloured; the

two intermediate tail feathers long and setaceous. Total length two feet. Inhabits the Moluccas.

Genus 23.—LAMPROTORNIS.—*Temminck.*

Generic Character.—Bill of medium size, depressed at the base, with a ridge concealed in the frontal feathers, somewhat convex above, and compressed at the tip, which is slightly notched; nostrils basal, lateral, ovate, partly closed by an arched membrane, frequently hidden by feathers; legs long; tarsus longer than the middle toe; internal toe adhering at its base, the external one free; fourth and fifth quills longest.

Lamprotornis gularis.—THE GORGET BIRD OF PARADISE.

Plate XLII. fig. 2.

Black, with a highly iridescent lustre of purple and green, having a golden metallic lustre on the back and under parts; throat of a copper golden hue; head crested; tail long, wedge-shaped. Size, exclusive of the tail, about seven inches. Inhabits the Moluccas.

ORDER III.—INSECTIVOROUS BIRDS.

The bill is of a medium size, or short in some genera; it is straight, rounded, or subulate; upper mandible curved, and notched at the tip; base for the most part beset with bristly hairs, directed forward; feet having three toes before and one behind, with parallel articulations; the exterior toe adhering at its base, or in some species to the first phalange of the middle toe.

Their voices, for the most part, melodious; and they feed on berries in the cold season.

Genus 1.—TURDUS.—Linnæus.

Generic Character.—Bill medium-sized, with a few bristles at its base directed forward, slightly bending towards the point, which is rather compressed, with the upper mandible emarginated, and notched near the tip; nostrils basal, lateral, and ovate, partly hidden by a naked membrane; tarsus longer than the middle toe, to which the outer one is attached at its base; first quill short, the third and fourth the longest.

Turdus musicus.—THE THRUSH, OR THROSTLE.

Plate XL. fig. 8.

Head and upper parts yellowish-brown, with a greenish tinge; sides of neck and upper parts of breast pale ochreous yellow, with arrow-shaped brown spots; throat white; abdomen and hypochondria white, with brown spots; bill blackish-brown, base of under mandible yellow; legs brown. Nine inches long. Inhabits Europe.

Turdus torquatus.—THE RING OUZEL.

Plate XL. fig. 9.

Upper and under parts of body and tail black, the feathers margined with gray; jugulum with a gorget-shaped white spot; bill blackish-brown; irides dark-brown; legs soot-brown. Ten inches long. Inhabits Europe.

Turdus merula.—THE BLACKBIRD.

Plate XLIV. fig. 1.

Deep black; bill and orbits chrome-yellow; legs dusky. Nine inches long. Inhabits Europe.

Turdus Orpheus.—THE MOCKING-BIRD.

Plate XLIV. fig. 2.

Gray-brown above, grayish-white beneath; uropigium grayish; bill dusky; irides yellow; ophthalmic region white; legs ash-coloured. Nine inches long. Inhabits the United States.

Genus 2.—CINCLUS.—Bechstein.

Generic Character.—Bill rather slender, slightly bent upwards, compressed at the sides; upper mandible emarginated at tip, and encompassing the lower one; nostrils basal, lateral, longitudinally cleft, and partly covered by a membrane; head small; wings short, first quill not quite the length of the second, which is also shorter than the third; three toes before and one behind, the exterior one attached at its base to the middle toe, which is longer than the tarsus.

Cinclus aquaticus.—THE EUROPEAN DIPPER.

Plate XLIII. fig. 8.

Upper parts blackish-brown, feathers margined with grayish-black; throat, eyelids, sides of the neck, and as low as the epigastrium, white; venter chestnut-brown, crissum darker; bill blackish-brown; legs dusky; irides yellowish-brown. Seven inches long. Inhabits Europe.

Genus 3.—MENURA.—Shaw.

Generic Character.—Bill broader than deep at its base, provided with setaceous plumes, directed forward, straight, and slender, slightly inclined at the tip, which has a small notch; upper mandible longer than the lower one; nostrils placed in the middle of the bill, oval, large, and protected by a membrane; claws same length as the toes, broad, obtuse, and convex above; wings short.

Menura superba.—THE SUPERB MENURA.

Plate XLIII. fig. 6.

Brown above, reddish-brown on the wings and neck; cinereous brown below; tail erect, consisting of fourteen internal extremely thinly fibred webs, the external feathers also erect, beautifully clouded with chestnut and brown on their inner margins, silvery-gray externally, the tips reflected, dusky-brown and black; head crested; legs dark gray, claw of the hallux very long. Size of a small pheasant. Inhabits New South Wales.

Genus 4.—PITTA.—Vieillot.

Generic Character.—Bill of medium size, strong, hard, and compressed, with a slight curvature from its base, where the ridge is elevated, bent at the tip, with a slight notch; nostrils at the base of the bill, lateral, and partly closed by a naked membrane; legs very long, slender, tarsus frequently double the length of the middle toe, internal toe attached to the first joint; wings short, rounded, the three first quills equally graduated, the fourth and fifth longest; tail short, equal, or rounded.

Pitta cyanura.—THE BLUE-TAILED PITTA.

Plate XLI. fig. 3.

Chestnut-coloured above, straw-colour beneath, and streaked with blue; head with black fillets; with a blue band on the breast, and another on the tail. Eight inches and a half long. Inhabits Guiana.

Genus 5.—MYIOTHERA.—Illiger.

Generic Character.—Bill long, straight, convex above, with the top slightly arched, bent at the tip, and notched; lower mandible arcuated in the centre, and a little bent upwards at the point; nostrils basal, lateral, and partly closed by a membrane; legs long, or of a medium length; the tarsus greatly longer than the middle toe; lateral toes nearly of equal length, the internal one attached the length of the first phalange; wings short, rounded; the fourth and fifth quills the longest; tail short, and the tectrices of equal length, or graduated and long in others.

Myiothera grallarius.—THE KING THRUSH.

Plate XLI. fig. 9.

Front ear coverts, back, wings, gula, jugulum, and tail, chestnut; under parts and gena pale reddish chestnut; breast and abdomen with lanceolate dark chestnut spots; back of the head and neck ash-colour; the feathers with a pale streak in their centre; legs long, dull flesh-coloured; tibia half covered

by feathers; tail very short. Eleven inches long. Inhabits Guiana.

Genus 6.—THAMNOPHILUS.—Vieillot.

Generic Character.—Bill short, robust, thick, somewhat gibbous; base widened, sides dilated, point somewhat compressed, obtuse, and considerably bent downwards, with a small notch near its tip; nostrils lateral, placed near the base of the bill, open, somewhat ovate or rounded; legs long and slender; tarsus considerably longer than the middle toe, to which the external toe is attached as far as the first joint; wings short, rounded; the fourth, fifth, and sixth quills of equal length, and longer than the others.

Thamnophilus niger.—THE BUSH SHRIKE.

Plate XLI. fig. 1.

Head furnished with a crest, composed of rather long dense black feathers, bristly near the base of the bill, covering the nostrils; the whole plumage is dull grayish-black, slightly tinged with blue on the rump and under parts; secondaries barred with umber-brown; toes long and slender, which, with the legs, are blackish-brown. Length eight inches. Inhabits South America.

Genus 7.—VANGA.—Vieillot.

Generic Character.—Bill long, undulated, hard, sharp at the edges, considerably hooked at its point, and sharp; nostrils lateral, placed near the base in the horn of the bill, concealed by a cartilage; tarsus as long, or in others longer than the middle toe; the external toe attached to the first joint; third quill longest.

Vanga cristata.—THE CRESTED SHRIKE.

Plate XXXVIII. fig. 5.

Black; collum white, with two lunated white spots behind the eyes on each side; large wing-coverts dark brown; crest very long and erect; nuchal bristles hardly perceptible.

Genus 8.—LANIUS.—Linnaeus.

Generic Character.—Bill of medium size, strong, straight from its base, and considerably compressed; upper mandible much bent towards its tip and hooked; base without cere, provided with strong nuchal bristles, directed forward; nostrils close to the base, lateral, nearly round, half closed by a concamerated membrane, nearly concealed by the bristles; tarsus longer than the middle toe; feet with three toes before and one behind, free; the third and fourth quills the longest.

Lanius excubitor.—THE GREAT SHRIKE.

Plate XLIV. fig. 3.

Upper parts pearl-gray, passing into ash-gray; under parts grayish-white; a black patch reaches from the base of the bill, across the ophthalmic region to the middle of the neck; bill black; irides blackish-brown; tail uniform, consisting of twelve feathers, the two middle ones black, the next two tipped with white, the others diminishing in depth of tint till the outer ones, which are nearly white; feet and claws black. Nine inches long. Inhabits Europe.

Genus 9.—PSARIS.—Cuvier.

Generic Character.—Bill thick, short, round, conical, and ridged at top, with the base depressed, and the tip bent, slightly notched, and compressed; nostrils lateral, round, open, and remote from the base of the bill, placed in the horny substance; legs robust, tarsus short, the length of the middle toe; the external toe attached to the first phalange; wings middle-sized; the third and fourth quills longest.

Psaris personata.—THE MASKED PSARIS.

Plate XLIII. fig. 2.

Upper parts ash-gray, paler below, and almost inclining to white; shoulders, quills, and secondaries, black; the wings are long in proportion; bill yellowish-brown; a narrow yellow-red

circle round the eyes ; tarsi and feet strong ; of a bluish-black. Length seven inches and a half. Inhabits Mexico.

Genus 10.—SPARACTES.—*Illiger.*

Generic Character.—Bill strong, thick, somewhat depressed at the base, and considerably dilated at the margins ; slightly bent and compressed, and notched at the point ; without a distinct nasal furrow ; lower mandible strong, broad, and obtuse at the tip ; nostrils lateral, situated at the base of the bill, within a furrow in the corneous substance ; legs robust ; tarsus longer than the middle toe.

Sparactes superbus.—THE SUPERB SHRIKE.

Plate XLIII. fig. 3.

Head with an upright crest of long narrow feathers ; plumage black ; throat scarlet, edged with yellow ; abdomen yellow, streaked with red ; quills margined with white ; bill thick and gray. Seven inches long. Inhabits the South Sea Islands.

Genus 11.—OCYPTERUS.—*Cuvier.*

Generic Character.—Bill somewhat depressed at the base, and the point notched and compressed ; upper mandible arched above, and slightly hooked at the point ; nostrils lateral, remote from the base, and penetrating the horny substance, concealed by the nuchal bristles ; legs and toes short ; wings long, the second and third quills of the same length, and longer than the others.

Ocypterus leucorhynchus —THE WHITE-BELLIED OCYPTERUS.

Head, neck, throat, back, wings, and tail, brownish-black, with a bluish changing colour ; ophthalmic region black ; irides chestnut ; bill lead-colour ; breast, belly, and rump white ; legs and feet strong, lead-coloured. Seven inches long. Inhabits Manilla.

Genus 12.—TRICOPHORUS.—*Temminck.*

Generic Character.—Bill short, strong, conical, compressed at the tip, and somewhat expanded at the base ; upper mandible bent at its point, and slightly notched ; base beset with long, strong nuchal bristles ; legs short ; tarsus not so long as the middle toe, the external one adhering the length of the second joint ; fourth, fifth, and sixth quills longest.

Tricophorus barbatus.—THE BEARDED TRICOPHORUS.

Plate LXVI, fig. 7.

Green above, glossed with ash-colour ; tail with a rufous tinge ; with a tuft of long yellow feathers under the throat, forming a beard ; under parts dusky-green ; base of upper mandible, occiput, and upper part of the neck beset with long nuchal bristles. Eight inches long. Inhabits Africa.

Genus 13.—EDOLIUS.—*Cuvier.*

Generic Character.—Bill robust, depressed at the base, point notched and compressed ; upper mandible slightly arched, bent at the point, and a little hooked ; lower mandible straight, turned up at the tip ; base beset with long, stiff, nuchal bristles ; nostrils lateral, partly covered with large feathers and hairs, placed at the base of the bill ; legs slender and short ; fourth, fifth, and sixth quills longest ; tail forked.

Edolus Malabaricus.—THE MALABAR EDOLIUS.

Plate XLIII, fig. 7.

Deep black, iridescent blue on the upper parts and breast, where the feathers are lanceolate ; a long erect crest rises from the base of the bill, extending to the sinciput ; exterior tail feathers with very long naked shafts, having spear-shaped plumes at their tips. Seven inches long. Inhabits India.

Genus 14.—CEBLEPYRIS.—*Temminck.*

Generic Character.—Bill short, strong, and thick, base ex-

panding, point somewhat tumid and compressed; upper mandible convex, bent towards the point, and notched; lower mandible straight, nearly the length of the upper one; nostrils lateral, oval, at the base of the bill, hidden by thick-set hairs; legs short, slender; lateral toes unequal, and united at the base; fourth and fifth quills the longest.

Cebblepyris Vaillantii.—LE VAILLANT'S CEBBLEPYRIS.

Plate XLII*. fig. 5.

Slate-gray above, under parts paler; breast and ophthalmic region dusky; quills brown, externally edged with white; tail doubly wedged. Six inches and a half long. Inhabits Africa.

Genus 15.—CORACINA.—*Vieillot*.

Generic Character.—Bill angular, thick, and strong, convex above, compressed at the point, slightly notched; nuchal bristles slender and short; nostrils basal, circular, the fore half open, and the other half closed by a membrane; legs strong, tarsus longer than the middle toe; fourth and fifth quills longest.

Coracina cephaloptera.—THE HELMETED CHATTERER.

Plate LI. fig. 6.

Plumage blue-black, breast and remiges of the wings blackish-brown; bill dusky, irides reddish-brown, head surmounted by a very large helmet of reflected plumes; feathers of the neck thick, and terminating like a cravat; jugulum naked; feet, legs, and claws, lead-coloured. Thirteen inches long. Inhabits Brazil.

Genus 16.—QUERULA.—*Vieillot*.

Generic Character.—Bill much depressed, triangular, both mandibles tumid; upper mandible sloping, with a small notch at its tip; under mandible with the point turned up, and very thin; base with long nuchal bristles, both above and below; nostrils basal, covered with the bristles; tarsus length of the middle toe; exterior toe joined to the tarsus, as far as the first joint, in-

ternal toe free; wings long, first and eighth quills same length, the second shorter than the sixth, and the fourth the longest of the whole; tail with twelve feathers.

Querula rubricollis.—THE RED-THROATED QUERULA.

Plate XXXVIII. fig. 8.

Whole plumage dark umber-brown; throat of deep scarlet, extending from the chin to the jugulum; irides orange; bill brown; legs and feet dusky. Eleven inches long. Inhabits Cayenne.

Genus 17.—AMPELIS.—*Linnaeus*.

Generic Character.—Bill short, somewhat depressed, deeper than broad, trigonal at its base, the tip acutely bent, and notched; nostrils lateral, roundish at the base, partly closed by a membrane; tarsus the length of the middle toe, sometimes shorter; internal and external toes united to the middle toe the length of the second joint; second quill the longest.

Ampelis Cotinga.—THE PURPLE-BREASTED CHATTERER.

Plate XLV. fig. 7.

Bright cobalt-blue above, and beautiful purple beneath; throat with darker clouds; wings and tail black. Eight inches and a half long. Inhabits Brazil.

Genus 18.—CASMARYHNCHOS.—*Temminck*.

Generic Character.—Bill broad, considerably depressed, horny, and notched at the point, soft and flexible at the base; with a large nasal furrow; lower mandible thin and flexible; nostrils large, oval, open, placed near the point of the bill, provided with small feathers; tarsus longer than the middle toe; fourth and fifth quills longest.

Casmaryhnhos carunculatus.—THE CARUNCULATED CHATTERER.

Plate XLV. fig. 8.

White, with the rump, quills, and tail, pale yellow; forehead without feathers; bill black, with a fleshy caruncle at its base; legs black. Twelve inches long. Inhabits Brazil.

Casmaryhnhos variegatus.—THE VARIEGATED CHATTERER.

Plate XLII. fig. 7.

Upper parts and thighs pale cinereous; head, to bottom of nucha, dull chestnut-brown; tergum dull green; wings blue-black; bill and legs slate-colour; irides orange-yellow; chin with several long fleshy wattles. Seven inches long. Inhabits Brazil.

Genus 19.—PROCNIAS.—Illiger.

Generic Character.—Bill broader than the forehead, sides considerably dilated, tip notched and much compressed, ridge slightly raised at the base; nostrils basal, tubular, margined by a membranous ring; tarsus longer than the middle toe; second and third quills longest.

Procnias ventralis.—THE BLUE BERRY-EATER.

Plate LXVI. fig. 2.

Azure blue above, forehead and jugulum black; abdomen white; hypochondria with transversal dusky stripes. Six inches long. Inhabits Brazil.

Genus 20.—RUPICOLA.—Cuvier.

Generic Character.—Bill of middle size, strong, slightly arched, bent upwards at the point, and notched; lower mandible parallel, and acute; nostrils lateral, ovate, hidden by the feathers of the tuft; legs strong; tarsus length of the middle toe, and partly covered with feathers; the external toe attached to a little beyond the second phalange; first quill filiform, and considerably longer than the rest.

Rupicola elegans.—THE ELEGANT RUPICOLA, OR HOOPOE HEN.

Plate LI. fig. 8.

Saffron-orange, quills brown, with a white bar across them; upper coverts erect and vaulted; tail fan-shaped, dusky, bordered with dull yellow; head surmounted by a semicircular erect crest, edged with lemon-yellow, within which is a fillet of lilac-colour; legs lemon-yellow. Ten inches long. Inhabits South America.

Genus 21.—PHIBALURA.—*Vieillot*.

Generic Character.—Bill very short, somewhat conical, and arcuated above, sides dilated; upper mandible notched at the point, under mandible straight; with a small nasal furrow; nostrils a little above the base, covered by a membrane, and surrounded by a narrow elevated edge; first and second quills longest; tail long, slender, and forked; tarsus about the same length as the middle toe.

Phibalura flavirostris.—THE YELLOW-BILLED PHIBALURA.

Plate XLII. fig. 3.

Back sulphur-yellow, transversely barred with black; abdomen and breast white, barred with sulphur-yellow, and longitudinal lines of black; crissum yellow; head having a black crest, with crimson spots; ophthalmic region black; gula yellow; collum white, with transverse black bars; tail feathers olive-green at the base, and black at the tips, much forked. Eight inches long. Inhabits Brazil.

Genus 22.—PIPRA.—*Linnaeus*.

Generic Character.—Bill trigonal, short, expanded at the base; compressed and notched at the point; nostrils basal, lateral, half concealed by a membrane which is slightly feathered; wings and tail short; the two exterior toes attached to the middle one for half their length; third and fourth wing feathers longest.

Pipra serena.—THE WHITE-FRONTED MANAKIN.

Plate LXVI. fig. 8.

Back, throat, pectus, tail, and wings, black ; venter and crissum rich golden-yellow, with a patch of the same on the centre of the pectus ; tergum royal blue ; front white ; bill black ; legs and feet dusky-gray ; irides chestnut.

Genus 23.—*PARDALOTUS*.— *Vieillot*.

Generic Character.—Bill very short, thick, dilated at the base, with a distinct ridge ; mandibles of equal length, strong, convex, and somewhat obtuse at tip, the upper one being notched ; nostrils lateral, basal, covered by a membrane ; legs slender ; tarsus longer than the middle toe.

Pardalotus striatus.—THE STREAKED MANAKIN.

Plate XLV. fig. 2.

Grayish-brown above, cream-coloured below ; top of the head black, with white stripes ; between the bill and the eye a rich yellow spot ; secondaries of the wings yellow at the tips. Four inches and a half long. Inhabits Van Dieman's Land.

Genus 24.—*TODUS*.—*Linnaeus*.

Generic Character.—Bill long, mandibles much depressed ; point of upper mandible straight, and cleft at the tip ; the lower mandible obtuse and truncated ; nostrils open and round ; base of bill beset with long nuchal bristles ; toes lateral, unequal ; the external one attached to the third joint, the internal to the second phalange ; wings short, with the fourth quill the longest.

Todus viridis.—THE GREEN TODY.

Plate XLV. fig. 4.

Upper parts of a warm yellowish-green ; white below ; throat scarlet, pectus silver gray ; crissum yellow ; axillæ and middle wing-coverts verdigris blue ; upper mandible skin-colour, lower

mandible pale yellow; legs ochre-yellow. Three inches and a half long. Inhabits North America.

Genus 25.—PLATYRHYNCHOS.—*Desmarest*.

Generic Character.—Bill broader than the face, and dilated at the base, expanding at the sides, where it is greatly depressed and beset with nuchal hairs; nostrils round, covered by a feathered membrane; tarsus longer than the middle toe, to which the exterior one is united as far as the first phalange; nail of the hallux strong and a little hooked; third and fourth quills the longest.

Platyrrhynchos Horsfieldi.—HORSFIELD'S PLATYRHYNCHOS.

Plate LI. fig. 5.

Upper parts, wings, and tail, dark blackish-brown; head crested, of blackish purple, which is also the colour of the throat and breast, changing into orange; the regio parotica, beautiful violet; tectrices and remiges clouded with bright gamboge-yellow; tail with a square yellow spot on each feather; base of the six central rectrices the same colour; irides orange; legs grayish-yellow. Six inches long. Inhabits Sumatra.

Genus 26.—MUSCIPETA.—*Cuvier*.

Generic Character.—Both mandibles of the bill considerably depressed, broader than deep; upper mandible with a sharp ridge, hooked at point and notched; lower mandible pointed, the base beset with long nuchal hairs, not unfrequently extending beyond the bill; nostrils open, placed at the base of the bill; side toes unequal, the external one attached to the second joint; first three quills graduated, the fourth and fifth the longest.

Muscipeta regia.—THE COAST MUSCIPETA.

Plate XLI. fig. 8.

Brown above, cream white beneath, with waved streaks of brown; crest rust-coloured, black at the edges; a white streak

over the eyes, and white under the chin ; bill dusky ; legs flesh-coloured. Seven inches long. Inhabits Cayenne.

Genus 27.—MUSCICAPA.—*Linnaeus.*

Generic Character.—Bill medium sized, sub-triangular, depressed at the base, strong, and compressed towards the tip, which is deflected ; both mandibles are emarginate ; base with long stiff nuchal bristles ; nostrils basal, lateral, and ovoid, partly hid by hairs ; tarsus same length as the middle toe ; lateral toes nearly of equal length, the external one joined at its base to the middle toe ; first quill very short, the second shorter than the third and fourth, the latter being longer than the rest

Muscicapa luctuosa.—THE PIED FLYCATCHER.

Plate XLV. fig. 3.

Head and upper parts of the body black, forehead and under parts pure white ; wings brownish-black, the middle and greater coverts white ; tail black. Five inches long. Inhabits Europe.

Genus 28.—MALURUS.—*Vieillot.*

Generic Character.—Bill slender, deeper than broad ; upper mandible slightly arcuated, base with nuchal bristles ; nostrils lateral, basal ; exterior toes united as far as the second joint ; wings rounded, very short ; tail slender and long.

Malurus cyaneus.—THE SUPERB WARBLER.

Plate LI. fig. 1.

Crown of the head, sinciput, and nuchium, ultra-marine blue ; upper wing-coverts the same ; remiges and quills brown, the latter edged with white ; lower part of the back, rump, and tail, royal purple ; middle feathers black ; cheeks pale ultra-marine ; chin, collum, and nucha, blackish-purple ; lower parts white, the pectus clouded with cobalt-blue ; irides orange ; bill black ; legs dusky. Five inches and a half long. Inhabits Van Diemen's Land and New Holland.

Genus 29.—SYLVIA.—Latham.

Generic Character.—Bill straight, slender, subulate, deeper than broad at the base; upper mandible frequently notched, the under one straight; nostrils lateral, ovoid, situated at the base of the bill, partly covered by a membrane; tarsus somewhat longer than the middle toe; first quill very short, wanting in some species, second and third nearly of the same length; wings short, coverts and scapulars abbreviated.

Section 1.—AQUATIC WARBLERS.—Vertex of the head depressed; wings short, considerably rounded; tail long, graduated, frequently conical. Song of many of the species with a great variety of notes.

Sylvia phragmitis.—THE SEDGE WARBLER.

Plate XLIV. fig. 4.

Crown, back, and wing-coverts, deep yellowish-brown, spotted with liver-brown; rump and upper tail-coverts paler, under parts cream yellow; a broad pale yellow patch above the eyes; chin and throat white; tail brownish-cinereous, somewhat rounded; legs and feet blackish-brown. Four inches long. Inhabits Europe.

Section 2.—SYLVIAN WARBLERS.—Tail square, or slightly forked at the end.

Sylvia luscinia.—THE NIGHTINGALE.

Plate XLIV. fig. 5.

Upper parts deep yellowish-brown; rump and tail pale orange-brown; throat and middle of the abdomen grayish-white; sides of the neck, breast, and hypochondria, gray; legs and feet yellowish-brown. Six inches long. Inhabits Europe.

Sylvia rubecula.—THE REDBREAST.

Plate XLIV. fig. 7.

Head and upper parts of the body dusky green; forehead, cheeks, throat, and breast, reddish-orange, darkest on the pectus, and margined with slaty-gray; abdomen white; middle wing-coverts tipped with pale orange; quills grayish-green;

irides black ; legs and toes yellowish-brown. Five inches and a half long. Inhabits Europe.

Sylvia atricapilla.—THE BLACK-CAP WARBLER.

Plate XLIV. fig. 6.

Forehead, crown, and occiput, black ; neck and breast gray ; upper parts of the body gray, tinged with green ; abdomen and crissum pale cinereous ; legs and feet bluish-gray. Five inches and a half long. Inhabits Europe.

Sylvia phœnicurus.—THE REDSTART.

Plate XLIV. fig. 7.

Forehead white ; vertex and back part of the neck deep blue-gray ; chin, gula, and jugulum, black ; breast, rump, hypochondria, and side tail feathers, reddish-orange, the two middle rectrices, are clove-brown ; epigastrium and crissum grayish-black, the second and sixth feathers being of equal length ; feet and legs black.

Genus 30.—REGULUS.—Cuvier.

Generic Character.—Bill straight, slender, deeper than broad, compressed, edges inflected ; nostrils basal, ovoid, covered by small nuchal bristles, directed forwards ; first quills of the wings short, the second considerably shorter than the third, which is longer than the rest ; tarsus longer than the middle toe, to which the outer one is joined at its base.

Regulus auricapillus.—THE GOLD-CRESTED REGULUS.

Plate XLIV. fig. 9.

Bill black, subulate ; feathers of the head elongated, of a silky texture, and of a rich golden yellow ; on each side of the crest there is a list of black ; cheeks and upper parts pale yellow ; quills brownish-black ; legs and feet brown, and very slender. Three inches and a half long. Inhabits Europe.

Genus 31.—TROGLODYTES.—Cuvier.

Generic Character.—Bill slender, slightly compressed, emarginated, curved ; nostrils basal, half covered by an arcuated membrane ; wings short, rounded, with the first quill very short, the second considerably shorter than the third, the fourth and

fifth of equal length, and longer than the rest; tail short, rounded, and carried erect; legs strong; tarsus same length as the middle toe, the external toes of equal length.

Troglodytes Europæus.—THE WREN.

Plate XLVI. fig. 1.

Head, upper parts of the body and tail pale chestnut-brown; under parts pale wood-brown; tail transversely barred with umber-brown; a pale streak over the eyes; legs yellowish-brown. Three inches and a half long. Inhabits Europe.

Genus 32.—SAXICOLA.—*Bechstein*.

Generic Character.—Bill straight, slightly carinated, with the base dilated, and resting on the forehead; tip of the upper mandible a little bent, and emarginated; coronal region rounded and high; nostrils basal, lateral, oval, and partly concealed by a membrane; tarsus considerably longer than the middle toe; the external toe adhering at its base to the middle one; wings of medium length, first quill not half the length of the second, which is shorter than the third and fourth, these last being the longest; coverts and scapulars very short.

Saxicola œnanthe.—THE WHEAT-EAR.

Plate XLVI. fig. 2.

Upper parts bluish-gray; wings brownish-black; abdomen and crissum white; lower part of the neck and breast pale chestnut-brown; side tail feathers white for two-thirds of their length, black at the points; centre feathers black; a black streak passes from the base of the bill across the eyes; bill, legs, and feet, black. Six inches long. Inhabits Europe.

Saxicola rubetra.—THE WHIN-CHAT.

Plate XLVI. fig. 3.

Crown of the head, back, and wing-coverts, dusky-black, each feather being bordered with ochre-yellow; rump yellowish-brown, streaked with dark brown; throat and breast pale orange-brown; abdomen and crissum white, tinged with yellow; a white streak passes from the base of the bill, over the eyes, to the nape; cheeks and ear-coverts dark brown; base of tail

white, two middle feathers black ; legs and feet black. Four inches and a half long. Inhabits Europe.

Genus 33.—ACCENTOR.—*Bechstein.*

Generic Character.—Bill strong, straight, of medium length, acuminate, edges of the mandibles sharp and inflected, the upper one emarginated ; nostrils basal, bare, pierced in a large membrane ; legs strong ; the exterior toe attached at its base to the middle one ; first quills very short, second shorter than the third, which is longer than the others.

Accentor modularis.—THE HEDGE ACCENTOR.

Plate XLVI. fig. 5.

Back and wing-coverts yellowish-brown, the centre of each feather being liver-brown ; middle wing-coverts tipped with white on their outer webs ; rump and hypochondria yellowish-brown ; abdomen grayish-white ; lower tail-coverts brown, bordered with white ; legs and feet strong, yellowish-brown. Five inches long. Inhabits Europe.

Genus 34.—MOTACILLA.—*Latham.*

Generic Character.—Bill slender, straight, subulated, slightly carinated, emarginated, its base resting upon the forehead ; edges of both mandibles inflected near the middle ; forehead depressed ; nostrils basal, lateral, oval, and partly concealed by a naked membrane ; tarsus considerably longer than the middle toe, external toe united at its base, hallux strong and long in some species ; first quills very short, the second the longest in the wing ; one of the greater coverts as long as the wing ; tail long, and square at its point.

Motacilla alba.—THE PIED WAGTAIL.

Plate XLVI. fig. 6.

Forehead, cheeks, sides of the neck, belly, and crissum, white ; crown, nape, throat, breast, upper parts of the body, and middle tail feathers, black ; lesser wing-coverts black, the greater ones bordered with grayish-white ; the two outer tail feathers white. Seven inches long. Inhabits Europe.

Motacilla Boarula.—THE GRAY WAGTAIL.

Plate XLII. fig. 1.

Bluish-gray above, rump bright sulphur-yellow; a white streak over the eyes; throat black; under parts bright chrome-yellow; wings grayish-black, coverts tipped with white; tail with the middle feathers black, and the outer ones white. Seven inches long. Inhabits Europe.

Motacilla flava.—THE YELLOW WAGTAIL.

Plate XLVI. fig. 7.

Upper parts pale yellow; wing-coverts blackish brown, margined and tipped with yellowish white; quills black brown, margined with pale yellow; middle tail-feathers black, margined with pale yellow; the two outer ones white; legs and feet dusky; hallux produced and slightly curved.

Genus 35.—ENICURUS.—*Temminck*.

Generic Character.—Bill elongated, dilated at the base, abruptly acuminate at the tip, which is attenuated and curved; nostrils situated in a groove, with an elevated membrane; tarsi slender; hallux strong and short; tail forked.

Enicurus coronatus.—THE WHITE-CROWNED ENICURUS.

Plate XLV. fig. 1.

Black; crown white; a crescent-shaped undulated white stripe passes over the upper wing-coverts, and ends at the bastard; wings black; rump, venter, and crissum, white; tail much forked; feathers of unequal length, each with three bars of white, and tipped with the same; outer feathers wholly white; irides hazel; legs ochreous yellow; claw of the hallux large and hooked; bill dusky gray. Ten inches and a half long. Inhabits Java.

Genus 36.—ANTHUS.—*Bechstein*.

Generic Character.—Bill straight, cylindrical, slender, subulate near the point; edges inflected towards the centre; base of upper mandible carinated, slightly bent down, and notched at the tip; nostrils basal, lateral, and ovate; partly hid by an arcuated membrane; tarsus usually longer than the middle toe, to

which the external one adheres as far as the first joint; claw of the hallux longer than the toe; third and fourth quills the longest.

Anthus pratensis.—THE TIT-LARK.

Plate XLVI. fig. 9.

Upper parts dusky green, with the centre of the feathers brownish black; under parts yellowish white, spotted with blackish brown upon the sides of the neck and breast; under parts white, hypochondria, with dark streaks; tail feathers blackish-brown; the exterior ones, with the edges of the web, white, and terminated by a long white spot; second feather with a small white spot at its tip. Five inches and a half long. Inhabits Europe.

Genus 37.—NEOPS.—*Vieillot*.

Generic Character.—Bill slender, much compressed at the sides, entire, pointed; upper mandible straight; lower mandible shorter, curved downwards in the middle and upwards at its tip, which is sharp; nostrils oval, covered by a membrane, and situated at the base of the bill; the external and internal toes are joined to the middle one as far as the first joint.

Neops ruficauda.—THE RED-TAILED NEOPS.

Plate XXXVIII. fig. 9.

Chestnut brown; the throat, abdomen, and crissum, mixed with brown and gray; crown, cheeks, and jugulum, spotted with white, having a white luniform list over the eyes; the middle wing-coverts blackish-brown in the centre, with a streak of black across the three external remiges, near the tip; external quills wood-brown; tail ferruginous; the middle feathers black; upper mandible pale-brown, lower one whitish; irides orange; legs and feet brown. Length, four inches and a half. Inhabits Cayenne.

ORDER IV.—GRANIVOROUS BIRDS.

Bill more or less conical, short, and strong; culmen more or less depressed and dilated, and advancing upon the forehead;

mandibles mostly without notches ; feet with three toes before and one behind, the anterior ones entirely divided ; wings of medium length.

Genus 1.—*ALAUDA.*—*Linnaeus.*

Generic Character.—Bill subconic, short ; mandibles of equal length, the upper one slightly arcuated ; nostrils basal, lateral, ovate, and partly concealed by short reflected feathers ; claw of the hallux much produced, and nearly straight ; wings with the first quills short, or wanting ; the third the longest ; coronal feathers usually produced, and capable of being erected into a crest.

Alauda arvensis.—*THE SKY-LARK.*

Plate XLVI. fig. 10.

Upper parts reddish-gray, the feathers being darker in the middle ; breast pale wood-brown, spotted with brownish-black ; a white list above the eyes ; neck, breast, and hypochondria, reddish ; tail brown, the outer feathers tipped with white ; legs and feet dingy-yellow ; claws brown. Six inches and a half long. Inhabits Europe.

Alauda arborea.—*THE WOOD-LARK.*

Plate XLVI. fig. 8.

Reddish cinereous above, with a darker spot in the middle of the feathers ; a white list extends over the eyes ; cheeks cream-yellow ; lower parts straw-yellow ; spotted on the neck and breast with black ; wing-coverts tipped with white ; tail shorter than that of the sky-lark ; legs flesh-colour. Six inches long. Inhabits Europe.

Genus 2.—*PARUS.*—*Linnaeus.*

Generic Character.—Bill strong, short, hard, subconic, and slightly compressed ; nostrils basal and round, covered with reflected nuchal bristles ; legs strong ; toes divided to their origin ; hallux furnished with a long hooked claw ; quills of medium length, or almost deficient ; the second shorter than the third ; the fourth and fifth longest.

SECTION I.—Having the first quill feathers of medium length. Inhabitants of woods.

Parus Major.—THE GREAT TITMOUSE.

Plate XLVI. fig. 12.

Back olive-green; rump and wing-coverts gray, the latter tipped with white; head, throat, and lower part of the neck, black; cheeks and ear-coverts white; tail grayish-green, edged with slate-gray; breast and abdomen sulphur-yellow, with a black streak running down the mesial line; under tail-coverts white; legs blue-gray. Length, five and a half inches. Inhabits Europe.

Parus cæruleus.—THE BLUE TITMOUSE.

Plate XLVI. fig. 11.

Back grayish-blue, tinged with green; under parts pale yellow; crown of the head azure-blue; front, list over the eyes, and cheeks white; ophthalmic streak black; nape and gular collar azure-blue; wings and tail pale Antwerp-blue; the greater coverts tipped with white; legs and feet slate-colour. Four inches and a half long. Inhabits Europe.

Parus palustris.—THE MARSH-TITMOUSE.

Plate XLVI. fig. 13.

Upper parts yellowish-gray; breast and abdomen white, tinged with pale yellowish-brown; head, nape, and neck, purplish-black; cheeks cream-yellow; legs gray. Four inches and a half long. Inhabits Europe.

SECTION II.—The first quill feathers very short, or altogether wanting.

Parus biarmicus.—THE BEARDED TITMOUSE.

Plate XLVI. fig. 14.

Nape and back yellow-brown, tinged with orange; abdomen and epigastrium pale fawn-colour; head, neck, and breast, blue-gray, the latter tinged with lilac; bill orange yellow; irides gamboge-yellow; base of the bill furnished with mustaches of loose pendant feathers; scapulars wood-brown; quills blackish-gray, edged with white, secondaries edged with orange-brown; tail long, cuneiform, orange-brown; exterior feathers edged and tipped with white; legs and feet black. Six inches long. Inhabits Europe.

Genus 3.—EMBERIZA.—Linnæus.

Generic Character.—Bill conical, strong, hard, and sharp-pointed; edges of both mandibles inflected, and compressed towards the point; upper mandible narrower and more acute than the under one, its roof furnished with a hard bony knob; nostrils basal, round, partly hidden by small feathers at the base of the bill; toes entirely divided; hallux with a short or produced bent claw; tail forked or slightly rounded.

SECTION I.—Claws of the hallux short and hooked.

Emberiza citrinella.—THE YELLOW BUNTING.

Plate XLVII. fig. 2.

Back and scapulars yellowish-brown, inclining to olive-green; wing-coverts and secondaries blackish-brown, edged with brownish-orange; quills black, edged with yellow; rump brown-orange, margined with grayish-white; head and upper parts of the breast chrome-yellow, varied with olive-green; abdomen and under tail-coverts bright yellow; hypochondria streaked with brownish-orange; legs and toes yellow-brown.

SECTION II.—Claws of hallux produced, and slightly bent.

Emberiza paradisea.—THE WHIDAH BUNTING.

Plate XLVII. fig. 1.

Summer plumage.—Head, throat, back, wings, and tail, black, the feathers of the latter two edged with ash-colour; sides of the collum and upper wing-coverts orange-chestnut; abdomen and crissum cream-white; bill lead-coloured; irides hazel, with a streak of pale fawn-colour over the eye, and another behind it; the two middle tail feathers four inches long, an inch and a quarter broad, placed horizontally; the two outer tail feathers nine inches and a half in length, an inch and an eighth broad; these four tail feathers end in a filamentary prolongation of the quills, an inch and a half long, tipped with a feathery web; two long flexible black feathers take their rise from the middle of the shafts, and reach nearly to the tip of the rectrices; legs and feet skin-colour.

Winter plumage.—Dark wood-brown, with black patches over

different parts of the head and neck ; a black list from the bill to the nape, over the eyes ; crown with a double row of black spots ; auricles black ; remiges, quills, and tail, black, bordered with reddish ash-colour ; abdomen and crissum white, tinged with reddish-yellow ; bill blue. Five inches and a half long. Inhabits Africa.

Genus 4.—*TANAGRA.*—*Linnaeus.*

Generic Character.—Bill short, strong, triangular at the base, carinated above, greatly compressed, and bent at the tip ; upper mandible notched, and projecting beyond the lower one, edges inflected ; under mandible straight, gibbous in the middle ; nostrils basal, lateral, rounded, partly hidden by protruding feathers ; tarsus same length as the middle toe ; external toe connected at its base, the internal one free ; second and third quills longest.

Tanagra atra.—*THE BLACK TANAGER.*

Plate XLVII. fig. 3.

Head and neck black, the other parts dark ash-colour ; quills and tail of a deeper blue ; legs and bill black. Seven inches long. Inhabits Guiana.

Genus 5.—*SALTATOR.*—*Vieillot.*

Generic Character.—Bill thick at the base, robust, convex above, laterally compressed, and flattened at the sides ; upper mandible arcuated, covering the sides of the lower mandible, curved, and notched at the point ; lower mandible straight, somewhat shorter than the upper one ; nostrils basal, small, and open ; middle toe united to the base of the exterior one, the interior quite free ; wings of medium length, the first and fourth quills longer than the rest.

Saltator olivaceus.—*THE OLIVE SALTATOR.*

Plate XLII*. fig. 1.

Crown, back, and tail, olive-green ; cheeks and jugulum slate-gray ; chin white, with a black stripe between it and the jugulum ; venter and crissum deep ochre-yellow, approaching to fawn-colour ; a white list over the eyes ; irides orange ; bill gray ; legs dusky-yellow.

Genus 6.—PLOCEUS.—Cuvier.

Generic Character.—Bill strong, forming an acute cone, sharp, inflected, and compressed at the point, without a notch; edges of the mandibles inflected; nostrils basal, placed high in the bill, ovoid, and open; tarsus same length as the middle toe; the three anterior toes adhering at the base; the fourth quill longest.

Ploceus Philippinus.—THE PHILIPPINE WEAVER.

Plate XLVII. fig. 4.

Brown above, whitish-yellow beneath; crown of the head and breast dull sulphur-yellow; throat burnt umber-brown. Five inches and a quarter long. Inhabits the Philippine Islands.

Genus 7.—LOXIA.—Brisson.

Generic Character.—Bill elongated, strong, and considerably depressed; both mandibles equally convex, and crossing each other at the points, when closed; nostrils round, lateral, and basal, hid by reflected hard nuchal feathers; the anterior toes quite free; first quill feathers longest; tail forked.

Loxia curvirostra.—THE COMMON CROSSBILL.

Plate XLVII. fig. 5.

Upper and under parts tile-red, intermixed with yellowish-gray; quills and tail bluish-black, margined with cream-yellow; legs and toes brown. Six inches long. Inhabits north of Europe and America.

Genus 8.—PSITTIROSTRA.—Temminck.

Generic Character.—Bill short, greatly hooked, gibbous at the base; upper mandible bent over the under one at the point; under mandible broad and rounded, with an obtuse tip; nostrils placed at the base of the bill, lateral, partly covered by a feathered membrane; tarsus somewhat longer than the middle toe; toes free, the lateral ones of equal length; first quill obsolete, second shorter than the third.

Psittirostra psittacea.—THE SANDWICH-ISLAND PARROT-BILL.

Head and neck yellow; rest of the plumage olive-brown.

Genus 9.—PYRRHULA.—Brisson.

Generic Character.—Bill very black, short, with the side-tumid, both mandibles convex, the upper one gibbous, overhanging the lower one at the tip; culmen somewhat compressed, and resting on the forehead; nostrils basal, lateral, round, in general concealed by the feathers at the base of the bill; tarsus shorter than the middle toe; the toes free from their origin; wings short, with the fourth quill feather longest; tail somewhat rounded or square.

Pyrrhula vulgaris.—THE BULLFINCH.

Plate XLVII. fig. 6.

Crown of the head, base of the bill, wings and tail velvet-black, tinged with violet-purple; nape of the neck and back fine blue-gray, the feathers silky and loose; cheeks, neck, breast, and abdomen orange-red; rump and crissum white; greater wing-coverts tipped and margined with pinkish-white, forming a transverse bar across the wings; legs dusky-brown. Six inches long. Inhabits Europe.

Genus 10.—FRINGILLA.—Illiger.

Generic Character.—Bill straight, and perfectly conical, short, hard, and sharp at the point; culmen of the upper mandible gibbous, frequently advancing in an angle on the forehead, and very slightly inclined at the tip; edges of under mandible a little inflected; nostrils basal, placed near the frontal bone, and partly hidden by the feathers in front; tarsus shorter than the middle toe; lateral toes free from their origin; wings short, the third and fourth quills the longest; tails varied in form.

SECTION I.—With bills very thick, the sides gibbous, more or less dilated, and the ridge rounded.

Fringilla Chloris.—THE GREEN FINCH.

Plate XLVII. fig. 7.

Upper parts rich green, passing into yellow, the feathers margined with ash-colour; greater wing-coverts and secondaries gray, the latter blackish in the centre; quills dark gray, outer edges yellow; middle tail feathers dark gray, margined with yellowish-gray; outer feathers chrome-yellow; bill pinkish-

white; legs pale wood-brown, tinged with flesh-coloured red; tail slightly forked. Six inches and a half long. Inhabits Europe.

SECTION II.—Bill straight, and perfectly conical; more or less short.

Fringilla Cælebs.—THE CHAFFINCH.

Plate XLVII. fig. 8.

Crown and nape deep lead-coloured blue; back chestnut brown; feathers margined with yellow-gray; rump sulphur yellow; lesser wing-coverts white, secondaries black, tipped with primrose yellow; quills and bastard wing black, the former margined with white; middle tail feathers blue-gray, margined with yellow, the rest black; two outer with a large white spot on the inner web; cheeks, neck, and throat, pale reddish-brown; breast pale reddish-purple; abdomen and crissum white; legs and feet pale-brown. Six inches long. Inhabits Europe.

Fringilla cannabina.—THE BROWN LINNET.

Plate XLVII. fig. 9.

Crown and neck cinereous; back, scapulars, and wing-coverts, pale burnt umber-brown; hypochondria pale reddish-brown; abdomen white; quills black, bordered with white; bill black; throat cream-white; tail forked. Five inches long. Inhabits Europe.

Fringilla Canaria.—THE CANARY FINCH.

Plate XLVII. fig. 10.

Body rich yellow; bill pale-yellow; tail and wings greenish yellow; legs and feet skin-colour. Five inches and a half long. Inhabits the Canary Islands.

SECTION III.—The bill in this section is longer, and more produced than in the former two, with the tip very fine, sharp, and somewhat compressed.

Fringilla linaria.—THE LESSER RED-POLL.

Plate XLVIII. fig. 1.

Crown, breast, hypochondria, and rump, crimson-colour; abdomen roseate; upper parts cinereous red, with longitudinal

black spots ; wings, throat, and tail, black ; upper mandible blackish-brown ; lower mandible straw-yellow ; legs and feet dusky-brown. Five inches long. Inhabits Europe.

Fringilla carduelis.—THE GOLDFINCH.

Plate XLVIII. fig. 2.

Forehead, temples, and chin, deep-red ; ear-coverts and neck white ; ophthalmic region, sinciput, and nape, deep black ; lower parts of the back whitish, intermixed with yellow-brown ; abdomen and crissum white, tinged with wood-brown ; hypochondria and scapulars deep yellow-brown ; lesser wing-coverts black ; greater coverts, lower half of quills, and tail, black ; upper parts of bright gamboge yellow, with a white spot at their tips ; tail with white longitudinal spots ; bill cream-yellow ; tip with a brownish tinge ; legs and toes brown. Five inches and a half long. Inhabits Europe.

Genus 11.—PHYTOTOMA.—*Gmelin*.

Generic Character.—Bill strong, conical, edged, with the margins of the mandibles serrated and equal ; nostrils basal, lateral, ovoid ; three toes before and one behind.

Phytotoma rara.—THE WHITE PLANT-CUTTER.

Plate L. fig. 1.

Dusky-gray above, pale-gray on the lower parts ; quills and tail feathers spotted with black ; tail rounded. Size of a Quail. Inhabits Chili.

Genus 12.—HYREUS.—*Stephens*.

Generic Character.—Bill conical, thick, straight, somewhat serrated ; nostrils ovate, basal ; feet with three toes, two before and one behind, which is strong, with a hooked claw.

Hyreus Abyssinicus.—THE ABYSSINIAN HYREUS.

Plate L. fig. 4.

Black above ; head, throat, and jugulum, red ; wing-coverts brown ; with white margins. Inhabits Abyssinia.

Genus 13.—COLIAS.—*Gmelin*.

Generic Character.—Bill short, thick, conical, somewhat

compressed at the point; both mandibles convex, the upper covering the lower one; nostrils basal, lateral, partly concealed by feathers; tail very long and tapering; tarsus short; the hallux reversible; the anterior toes free; wings short; the third quill longest.

Colias Capensis.—THE CAPE COLY.

Plate LI. fig. 2.

Body and tail ash-coloured above, cream-yellow beneath; outer edges of the exterior tail-feathers white; legs dusky. Six inches long. Inhabits the Cape of Good Hope.

ORDER V.—ZYGODACTYLOUS BIRDS.

Bill varied in form, more or less curved, sometimes much hooked; and in other genera straight and angular; feet always with two toes before and two behind, the exterior hind toe frequently reversible.

The toes being in pairs is a striking characteristic of this order. It is divided into two subdivisions.

SUB-DIVISION I.—Bill more or less curved; the exterior hind toe reversible in some species.

Genus 1.—MUSOPHAGA.—*Temminck*.

Generic Character.—Bill short, robust, broad; ridge arcuated, notched at the point; tip of lower mandible angular; nostrils basal, frequently hid by feathers; legs strong; tarsus same length as the intermediate toe; the exterior reversible; lateral toes of equal length; fourth and fifth quills longest. Sixteen inches long. Inhabits Africa.

Musophaga Africana.—THE AFRICAN TOURACO.

Plate XLV. fig. 5.

Bluish-green; head furnished with a helmet-shaped black crest; quill feathers crimson; tail bluish purple; abdomen, thighs, and under-coverts, brownish black.

Genus 2.—INDICATOR.—Vieillot.

Generic Character.—Bill short, depressed, sides dilated; point notched and slightly bent; upper mandible ridged; nasal furrow large; nostrils basal, somewhat tubular; tarsus shorter than the external toe; the anterior toe united to the first joint; wings long; the third quill longer than the rest.

Indicator Major.—THE GREAT HONEY-GUIDE.

Plate XLVIII. fig. 3.

Upper parts brownish-olive-green; rump and tail coverts white; breast and under parts pale yellow; middle of the neck spotted with black. Ten inches long. Inhabits Africa.

Genus 3.—CUCULUS.—Linnæus.

Generic Character.—Bill somewhat compressed, slightly curved, of the length of the head; nostrils basal, round, margined by a naked prominent membrane, and pierced in the margin of the mandible; wings of medium length, first quill short, the third longest; tarsus very short, legs feathered below the knee; hind toes free, the exterior reversible; tail more or less cuneiform.

Cuculus canorus.—THE COMMON CUCKOO.

Plate XLVIII. fig. 4.

Head, neck, breast, and upper parts, blue-gray, darker on the wing-coverts; abdomen, thighs, and under tail-coverts, white, transversely barred with black; inner edges of quills spotted with white; tail black, tipped with white; bill horn-colour, yellowish at the base; corner of mouth and ophthalmic region orange; irides gamboge-yellow; legs yellow. Ten inches and a half long. Inhabits Europe.

Genus 4.—COCCYZUS.—Vieillot.

Generic Character.—Bill strong, compressed, with a distinct ridge, and slightly bent from its base; under mandible straight, sloping at the tip; nostrils basal, half covered by a naked membrane; legs slender, tarsus longer than the exterior toe; wings short, somewhat rounded, the first five feathers graduated.

Coccyzus cæruleus.—THE BLUE CUCKOO.

Plate XLII. fig. 6.

The whole plumage iridescent Antwerp-blue, with purple and green reflection; eyes orange, surrounded by a patch of the same colour; bill black; legs dusky.

Genus 5.—CENTROPUS.—*Illiger*.

Generic Character.—Bill thick, strong, compressed, deeper than broad; upper mandible carinated, and arched towards the point, nostrils basal, lateral, and cleft diagonally; legs long, strong; tarsus somewhat longer than the exterior toe, the two anterior ones adhering at their base; internal hind toe with a long subulate sharp claw.

Centropus phasianus.—THE PHEASANT CENTROPUS, OR COUCAL.

Plate LI. fig. 3.

Back and wings mottled with pale orange, brown, and black; bill, head, neck, and abdomen, blackish-brown; tail deep black, long, with transverse bars of iridescent-black. Seventeen inches long. Inhabits New Holland.

Genus 6.—PHÆNICOPHOUS.—*Vicillot*.

Generic Character.—Bill longer than the head, strong, thick, rounded, smooth, arcuated, the base furnished with divergent nuchal bristles; nostrils linear and lateral, remote from the base; orbits naked, papillose; tarsus longer than the external toe; wings short.

Phaniphous leucogaster.—THE TRICOLOURED MALCOHA.

Plate L. fig. 7.

Greenish-black, abdominal and tail feathers margined with white; throat and neck sea-green; bottom of cheeks white; and a patch of orange round the eyes. Nine inches long. Inhabits Africa.

Genus 7.—LEPTOSOMUS.—*Vicillot*.

Generic Character.—Bill laterally compressed, and nearly triangular; keel prominent; upper mandible slightly bent, the lower one straight; nostrils placed in the middle of the mandible, partly closed by an elongation of the horny substance; tar-

sus length of the exterior toe, depressed, scaly; wings long, the fourth quill longest; tail long, equal.

Leptosomus viridis.—THE AFRICAN CUCKOO.

Plate XLII. fig. 5.

Crown, back, wings, tail, and circle round the eyes, rich iridescent olive-green, reflecting in different directions, crimson, purple, brown, and golden-yellow; the whole under parts blue-gray; irides orange; tail dusky-brown; legs yellow. Sixteen inches long. Inhabits Africa.

Genus 8.—SCYTHROPS.—*Latham*.

Generic Character.—Bill long, convex above, compressed laterally, considerably bent at the tip; upper mandible longitudinally grooved; nostrils basal, naked, and round; ophthalmic region naked; tarsus shorter than the middle toe, the two exterior ones united at the base; tail long, and graduated.

Scythrops Novæ Hollandiæ.—THE NEW HOLLAND SCYTHROPS.

Plate L. fig. 9.

Lead-coloured, and the tail feathers transversely barred with black; bill four inches long. Seventeen inches long. Inhabits New Holland.

Genus 9.—SAUROTHERA.—*Vieillot*.

Generic Character.—Bill longer than the head, slender, laterally compressed, convex above; edges of the upper mandible straight, slightly dentated; point drooping suddenly; nostrils oblong, covered by a membrane; tarsus short, smooth, and annulated; front toes slightly attached at the base, the hind ones quite free; wings medium length; the bastard wing very short; the second and third quills the longest; tail with ten feathers.

Saurothera vetula.—THE LONG-BILLED CUCKOO.

Plate XXXVIII. fig. 10.

Upper parts yellowish-brown; throat gray; venter and crissum chestnut-brown; under side of the tail feathers white, finely barred with blue-black; irides yellow; space round the eyes orange; bill white, with nuchal bristles at its base; feet dull gray. Sixteen inches long. Inhabits St Domingo.

Genus 10.—PTEROGLOSSUS.—*Müller*.

Generic Character.—Bill slender, longer than the head, arcuated above, externally serrated, and curved at the point; nostrils vertical, round, and open; tarsus same length as the external toe, the two anterior toes adhering to the second joint; wings short, vaulted, the first quills graduated; tail long and graduated.

Pteroglossus maculatus.—THE SPOTTED-BILLED ARAGOU.

Plate XLII*. fig. 4.

Head, back, sides of the neck, throat, and breast, deep black; wing-coverts saffron-yellow; upper parts and tail dusky sap-green; head divided from the neck by a band of primrose-yellow; quills blackish-brown; the tail tipped with orange-brown. Length, including the bill, twelve inches. Inhabits Brazil.

Genus 11.—RAMPHASTOS.—*Linnaeus*.

Generic Character.—Bill broader than the head at the base, arcuated above, serrated at the edges, and somewhat incurvated at the point, thin, transparent, and cellular; nostrils vertical, concealed behind the horny mass, surrounded by a membrane; tarsus same length as the external toe; the anterior toes adhering to the second joint; tail short.

Ramphastos ariel.—THE BRAZILIAN TOUCAN.

Plate XL. fig. 2.

Upper surface, abdomen, wings, and tail, clear black; throat, neck, and cheeks, orange-yellow, with a straw-coloured border beneath; skin around the eyes red; a crimson band across the breast, as are also the upper and under tail-coverts; betwixt the bill and head a black line, bounded by a yellow band; upper edge of the bill pale blue, other parts deep black; irides bright blue; legs and feet gray, claws black. Length, including bill, eighteen inches. Inhabits Brazil.

Genus 12.—CROTOPHAGA.—*Linnaeus*.

Generic Character.—Bill short, thick, compressed, upper mandible carinated, the edges angulated; nostrils basal, ovate, lateral; legs slender; the tarsus smooth, longer than the external toe; wings short, convex, the first quill short, the second

and sixth same length, the fourth the longest of the whole ; tail with eight broad feathers.

Crotophaga ani.—THE AMERICAN KEEL-BILL.

Plate XLII*. fig. 3.

Black, with an iridescent play of colours from violet, green, and pink ; tail cuneiform. Nine inches long. Inhabits America.

Genus 13.—TROGON.—*Linnaeus*.

Generic Character.—Bill short, thick, arcuated, broader than high, bent downwards at the point, and crevulated on the margin, with long nuchal bristles at the base ; nostrils basal, open ; legs short ; tarsus shorter than the external toe, partly covered with feathers below the knee ; the exterior toe reversible ; the fifth quill longest.

Trogon Pavonius.—THE QUIZEL.

Plate XLVIII. fig. 5.

Head surmounted by a large crest of upright filamentary feathers, consisting of a mixture of green, golden-yellow, and crimson ; throat, neck, breast, back, wing-coverts, and the four principal feathers of the tail, of a rich iridescent-green, reflecting, in different lights, the appearance of burnished gold ; the shafts of all the feathers are of a deep ultra-marine blue, and the wing-coverts hang dangling over the sides, extending beyond the abdomen ; quills brownish-black ; abdomen and crissum bright scarlet ; bill and feet skin-colour ; claws black ; tarsus covered to the feet with dusky feathers ; irides bright green ; side tail feathers black, under side white. Length, exclusive of tail, seven inches ; two middle tail feathers twenty inches long. Inhabits South America.

Genus 14.—CAPITO.—*Vieillot*.

Generic Character.—Bill long, straight at the base, broader than deep, compressed at the point ; upper mandible bent at the tip, and longer than the under one ; nostrils lateral, placed in the horny substance at the base of the bill, and hidden by stiff nuchal bristles ; tarsus same length as the exterior toe ; the two anterior toes attached the length of the second phalange ; wings short, slightly rounded.

Capito collaris.—THE COLLARED BARBET.

Plate L. fig. 3.

Reddish-brown above, with a black collar round the neck ; head black ; throat and under parts white ; tail rufous, and barred transversely with a darker colour. Seven inches and a half long. Inhabits Guiana.

Genus 15.—BUCCO.—*Linnæus*.

Generic Character.—Bill robust, pointed, laterally compressed, and with long nuchal bristles at the base ; upper mandible strong, emarginated, and incurved ; nostrils basal, lateral ; tarsus shorter than the exterior toe ; the anterior toe attached as far as second phalange.

Bucco niger.—THE BLACK-THROATED BARBET.

Plate XLII. fig. 8.

Crown, nape, throat, wings, and tail, black ; the upper wing-coverts spotted with white ; front scarlet ; ophthalmic region extending halfway down the throat ; sides of the neck, back, and whole under parts, white ; legs and bill dusky. Six inches long. Inhabits the East Indies and Africa.

Genus 16.—POGONIAS.—*Illiger*.

Generic Character.—Bill short, robust, with the ridge much arcuated ; edge of upper mandible strongly serrated, sometimes smooth, and at others furrowed ; lower mandible not so deep as the upper one ; nostrils basal, lateral, with rigid nuchal bristles at its base ; tarsus same length as the exterior toe ; the anterior one adhering as far as the joint of the second phalange.

Pogonias sulcirostris.—THE GROOVE-BEAKED POGONIAS.

Plate L. fig. 8.

Body above, wings and tail, black ; back with a white spot ; throat, collum, and abdomen, scarlet, with a paler spot on the wings ; hypochondria straw-yellow ; quills dark burnt umber-brown ; upper mandible with a longitudinal groove, and the lower one with several. Nine inches long. Inhabits Africa.

Genus 17.—PSITTACUS.—*Linnaeus*.

Generic Character.—Bill short, thick, robust, gibbous, much

arcuated both above and below ; upper mandible greatly bent, and hooked at the point, and provided with a notch ; under mandible short and truncated ; having a cere at the base of the bill ; head large ; nostrils roundish, and placed within the cere ; legs short, very strong ; tarsus shorter than the external toe ; the interior toes attached at their base.

Sub-Genus 1.—*PSITTACUS*.—Parrots.—Face covered with feathers.

Psittacus Cyanotus.—THE BRAZILIAN PARROT.

Plate XLVIII. fig. 6.

Rich yellow-green above, and paler on the under parts, the feathers margined with purple-brown ; cheeks Antwerp-blue ; crown yellow ; wings edged with red ; quills dull blue ; outer tail feathers blue, the second red, and the rest green, tipped with yellow. Inhabits Brazil.

Sub-Genus 2.—*PLYCTOLOPHUS*.—*Vieillot*.—Cockatoos.—Head with a crest.

SECTION 1.—Crest pendulous.

Psittacus rosaceus.—THE ROSE-CRESTED COCKATOO.

White, with an occasional tinge of rose-colour ; crest orange-red ; inferior wing and tail-coverts pale sulphur-yellow ; bill bluish-black ; legs lead-colour. Sixteen to eighteen inches long. Inhabits Sumatra.

SECTION 2.—Crest turned upwards.

Psittacus sulphureus.—THE YELLOW-CRESTED COCKATOO.

Plate XLVIII. fig. 8.

White, crest bright sulphur-yellow ; under surface of the wings and tail straw-coloured ; cheeks occasionally the same ; bill grayish-black ; irides dusky brown. Length fifteen inches. Inhabits New Holland.

Sub-Genus 3.—*MACROCERCUS*.—Maccaws.—*Vieillot*.—Face divested of feathers, or occasionally striated with transverse feathered lines ; tail long, cuneiform, and acute.

Psittacus Aracanga.—THE RED AND YELLOW MACCAW.

Plate XLVIII. fig. 7.

Scarlet ; quills of a bright cobalt-blue ; feathers on the lower part of the neck tinged with green at their edges ; upper wing-coverts the same ; larger wing-coverts light yellow, tipped with green ; face naked, white ; upper mandible yellowish-white ; lower mandible, claws, and legs, deep black. Two feet long. Inhabits Cayenne and Surinam.

Sub. Genus 4.—PALÆORNIS.—Parrakeets.—*Vigors*.—Cheeks clothed with feathers ; tail long and graduated ; the two middle feathers greatly lengthened.

Psittacus Alexandri.—THE ALEXANDRINE PARRAKEET.

Plate XLVIII. fig. 9.

Emerald green ; bill deep ruby ; neck half encircled by a rose coloured collar ; fore part of the throat with a black patch extending laterally in two narrow processes on each side of the neck ; a black line extending from the bill to the eyes. Length twenty inches. Inhabits Ceylon.

FAMILY II.—Bill straight, angular, and generally cuneiform.

Genus 18.—PICUS.—*Linnaeus*.

Generic Character.—Bill about the length of the head, straight, conical, compressed, angular, and cuneiform at the point ; nostrils basal, oval, open, concealed by the setaceous feathers at the base of the bill ; tongue long, extensile, and vermiform ; legs very strong ; feet large ; two toes before and two behind, armed with strong hooked claws ; anterior toes adhering at their base, the posterior ones divided ; tail with twelve feathers, the lateral ones being very short.

Picus major.—THE GREATER SPOTTED WOODPECKER.

Plate XLIX. fig. 1.

Black above, variegated with white ; cheeks, throat, venter, and crissum, white ; nape deep red ; bill bluish-black ; irides purplish-red ; legs and feet gray. Nine inches long. Inhabits Europe.

Picus minimus.—THE LEAST WOODPECKER.

Plate XLIX. fig. 2.

Upper parts pale umber-brown, with white spots on the shoulders; under parts brownish-yellow; bill and sides of the head black, the latter spotted with white; crown surmounted by a crest; legs and feet bluish-gray. Three inches long. Inhabits Java.

Genus 19.—GALBULA.—Brisson.

Generic Character.—Bill long, nearly straight, or slightly bent at the tip, quadrangular and pointed; nostrils basal, ovate, partly covered by a naked membrane; legs short; the tarsus shorter than the external toe; feet strong; the anterior toes united as far as the joint of the third phalange.

Galbula viridis.—THE GREEN JACMAR.

Plate L. fig. 6.

Rich golden green above; venter and crissum reddish; throat white; tail long, cuneiform, consisting of ten feathers; irides blue. Six inches and a half long. Inhabits Brazil.

Genus 20.—YUNX.—Linnaeus.

Generic Character.—Bill short, straight, conical, depressed, the ridge rounded, somewhat slender at the tip; nostrils basal, lateral, and partly closed by a membrane; the two anterior toes united at their base; posterior ones divided; tongue long, extensile, and vermiform, provided at its tip with a horny substance; tail with ten flexible soft feathers; wings of medium length; the first quill a little shorter than the second, which is the longest in the wing.

Yunx torquilla.—THE WRYNECK.

Plate XLIX. fig. 3.

Head, back, wing-coverts and rump, yellowish-gray, beautifully mottled with brown specks and arrow-shaped bars of white; a blackish-brown line extends from the nape to the middle of the back; tail barred with black, and the wings with brownish-black; under parts cream-white; irides chestnut-brown; bill yellowish-brown. Six inches and a half long. Inhabits Europe.

ORDER VI.—ANISODACTYLI.

Bill more or less arcuated, subulated, and slender, frequently straight; feet with three toes before and one behind, the exterior one always adbering at its base to the middle toe; the ballux usually long; all the toes furnished with long and bent claws.

Genus 1.—OXYRHYNCHUS.—Temminck.

Generic Character.—Bill short, straight, triangular at its base, thin and subulate at the point; nostrils basal, lateral, naked, and half covered by a membrane; tarsus short, being about the length of the middle toe; three toes before, the lateral ones equal, the external toe attached at the base, the internal one free; fourth and fifth quills the longest.

Oxyrhynchus flammiceps.—THE BRIGHT BILLED OXYRHYNCHUS.

Plate L. fig. 5.

Brownish-black above; wings olive green; yellowish white beneath, with dusky-brown spots; head surmounted by a crimson incumbent crest, its sides having three transverse yellowish lines. Seven inches long. Inhabits Brazil.

Genus 2.—SITTA.—Linnæus.

Generic Character.—Bill straight, cylindrical, slightly compressed, and subulated; upper mandible a little longer than the lower one, and acuminated; tongue short, and armed with a horny point, basal, somewhat rounded, and partly hid by reflected nuchal bristles; feet with three toes before and one behind, the outer toe joined at its base to the central one; ballux same length as the middle toe, with a long hooked claw; tail with twelve feathers; wings short; the first quill very short, the third and fourth being the longest.

Sitta Europæa.—THE EUROPEAN NUTHATCH.

Plate XLIX. fig. 4.

Blackish-gray above; breast and abdomen buff-orange; chin and face white, with a black streak from the base of the bill, passing through the ophthalmic region, and terminating at the

top of the wing; four lateral tail feathers black, the central ones gray; bill and legs gray. Five and a half inches long. Inhabits Europe.

Genus 3.—ORTHONYX.—Temminck.

Generic Character.—Bill very short, compressed, and nearly straight, with a slight notch at the point; nostrils open, situated in the middle of the bill, surrounded by bristles; tarsus longer than the middle toe; claws very long, with lateral furrows; wings very short; tail long and pointed.

Orthonyx maculatus.—THE SPOTTED ORTHONYX.

Plate XLII*, fig. 6.

Dusky-brown above, with black irregular spots; throat red, edged with black. Seven inches long. Inhabits New Holland.

Genus 4.—DENDROCOLAPTES.—Herman.

Generic Character.—Bill depressed, trigonal at the base; straight or bent, with an acute point; nostrils basal, lateral; tongue short, cartilaginous; tail conical, with stiff acuminate feathers; external toe adhering to the intermediate one as far as the joint of the second phalange, the internal toe very short; claws hooked, and with a longitudinal furrow.

Dendrocolaptes procurvus.—THE CROOKED BILLED DENDROCOLAPTES.

Plate LXVI. fig. 1.

Head, neck, and scapulars, olive-brown, with interrupted white longitudinal stripes; wings and tail reddish-brown; breast, abdomen, and crissum, olive brown, with white stripes; bill rufous, greatly curved. Ten inches and a half long. Inhabits Brazil.

Genus 5.—XENOPS.—Illiger.

Generic Character.—Bill short, slender, much compressed, subulate and acute; tips of both mandibles recurved; nostrils basal, lateral, and covered by a naked membrane; lateral toes of equal length; external toe adhering to the intermediate toe as far as the second joint; claws strong, compressed, and hooked; tail cuneiform.

Xenops genibarbis.—THE XENOPS.

Plate L. fig. 4.

Reddish-brown above, gray-brown on the under parts; gena, ophthalmic region, throat, and breast, white, with a white spot under the ear-coverts; medium quills brown-black, with reddish margins. Four inches and a half long. Inhabits Brazil.

Genus 6.—ANABATES.—*Temminck*.

Generic Character.—Bill straight, not so long as the head; compressed, and deeper than broad at the base, somewhat bent at the point; nostrils basal, lateral, ovate, and hidden by a feathered membrane; tarsus longer than the middle toe; the exterior toe adhering to the length of the joint of the second phalange; the interior one joined at the base; wings short.

Anabates leucophrus.—THE WHITE-BROWED ANABATES.

Plate XLII*. fig. 7.

Upper parts umber-brown; throat pale ochreous yellow; cheeks, neck, breast, and abdomen, umber-brown, paler towards the crissum; tail rich Indian-red; a white streak extends over each eye, to nearly the occiput; bill yellow-brown; feet and legs dusky. Nine inches and a half long. Inhabits Brazil.

Genus 7.—OPETIORHYNCHUS.—*Temminck*.

Generic Character.—Bill somewhat longer than the head, slender and subulate, depressed at the base, and compressed at the tip; nostrils lateral, a little way from the base of the bill, half closed by a naked membrane; tongue short, cartilaginous; tarsus double the length of the middle toe; lateral toes of equal length, the exterior one adhering at the base; wings short; the first three feathers graduated, the third and fourth longest; tail short, and somewhat graduated.

Opetiorhynchus rufus.—THE REDDISH OPETIORHYNCHUS.

Plate XLII. fig. 8.

Reddish; darker on the upper parts, and inclining to pale-yellow beneath; quills brownish; tail slightly rounded at the end. Eight inches and a half long. Inhabits South America.

Genus 8.—CERTHIA.—Linnæus.

Generic Character.—Bill long, or of medium length in some species; slender, curved, triangular, and compressed; nostrils basal, horizontal, and half closed by a membrane; three toes before and one behind, the exterior adhering at its base to the middle one; claws much hooked, that on the hallux longest; tail graduated; shafts stiff and pointed; fourth quill longest.

Certhia familiaris.—THE COMMON CREEPER.

Plate XLIX. fig. 12.

Yellowish-brown above, throat, breast, and belly white, the crissum ochre-yellow; upper mandible dusky, lower one white; tail grayish; legs and toes yellowish-brown. Five inches and a half long. Inhabits Europe.

Genus 9.—CÆREBA.—Brisson.

Generic Character.—Bill slightly arched, thick at the base, and sharp-pointed; edges of the mandibles inflected; tongue long, but not extensible; bifid and filamentous; tarsus longer than the middle toe; lateral toes equal; tail of medium size.

Cæreba cyanea.—THE CYANEAN CÆREBA.

Plate XLI. fig. 9.

Throat, neck, breast, abdomen, and crissum, rich cobalt blue; wings golden-yellow; back, wings, and tail, black, with an oblique blue band; inside of the front, and crown of the head, bright green; ophthalmic region deep black; irides brown; bill black; feet flesh-colour; claws black. Five inches long. Inhabits Cayenne.

Genus 10.—TROCHILUS.—Linnæus.

Generic Character.—Bill long, straight, arcuated in some species, tubular, very slender, with the base depressed and acuminate; upper mandible nearly enveloping the under one; tongue long, extensible, bifid, and tubular; nostrils open before, and covered by a membrane; legs very short; tarsus shorter than the middle toe; the three anterior toes almost divided; wings long, graduated; the first quill longest.

Trochilus multicolor.—THE HARLEQUIN HUMMING-BIRD.

Plate XLIX. fig. 6.

Crown of the head, chin, throat, breast, and upper part of the wings, of a rich, shining, golden-green; cheeks, collum, and back of the neck iridescent ultramarine blue; abdomen and crissum orange; lower part of the neck with a collar of intense black, separating the blue from the verdigris blue of the back; lower part of the wings and tail fawn-coloured brown; bill very long, which with the legs are pale fawn. Four inches long. Inhabits South America.

Trochilus colubris.—THE RUBY-THROATED HUMMING BIRD.

Plate XLIX. fig. 7.

Upper parts rich shining green; with the throat of a ruby iridescent red colour; under parts white. Two inches and a half long. Inhabits the United States.

Genus 11.—NECTARINIA.—*Illiger*.

Generic Character.—Bill long, slender, subulate, arcuated, expanded, and depressed at the base; mandibles of equal length; the lower one inflected, and partly enveloped in the upper one; tongue long, bifid, extensible, and tubular; nostrils situated near the base, closed by a naked membrane; tarsus as long as the middle toe, in some species longer; the lateral toes attached at the base; the first quill awanting, or very short, the third and fourth the longest.

Nectarinia chalybea.—THE CHALYBEAN NECTARINA.

Plate XLIX. fig. 5.

Head, neck, breast, lesser wing-coverts, and back, rich golden-green; wings and tail dusky-brown; breast crimson, with a transverse band of steel-blue; abdomen white. Length four inches and a half. Inhabits the Cape of Good Hope.

Genus 12.—CLIMACTERIS.—*Temminck*.

Generic Character.—Bill short, much compressed, and subulate; mandibles of equal length, and pointed; nostrils situated near the base, and covered by a naked membrane; tarsus the length of the middle toe, which, with the hallux, is very long; claws long and hooked, furrowed on the sides; exterior toe at-

tached as far as the second joint, the interior one as far as the first joint; third and fourth quills the longest.

Climacteris scandens.—THE CLIMBING CLIMACTERIS.

Plate LXVI. fig. 4.

Dark brown above; rump and middle tail feathers lead-coloured; throat and neck, in front, white; breast and abdomen cream-yellow; hypochondria and under tail-coverts clouded with brown and white; wings brown, with two paler transverse bands. Five inches and three quarters long. Inhabits New Holland.

Genus 13.—TICHODROMA.—*Illiger*.

Generic Character.—Bill very long, slender, slightly arcuated, cylindrical, angular at the base, depressed at the point; nostrils basal, naked, and half closed by an arcuated membrane; the exterior toe attached at its base to the middle toe; claw on the hallux very long; tail round, with the shafts weak.

Tichodroma phænicoptera.—THE WALL-CREEPER.

Plate XLI. fig. 7.

Leaden-gray; upper wing-coverts and central quills crimson; remiges, quills, and tail, black; lower half of the outer feathers white; bill, throat, legs, and feet, black. Six inches and three quarters long. Inhabits Italy.

Genus 14.—UPUPA.—*Linnaeus*.

Generic Character.—Bill very long, slightly arcuated, slender, triangular, and compressed; nostrils basal, lateral, ovoid, open; feet with three toes before and one behind; the exterior toe united to the middle one as far as the first joint; tail square, consisting of twelve feathers.

Upupa epops.—THE HOOPE.

Plate XLIX. fig. 8.

Head surmounted by a crest, consisting of a double row of feathers, tipped with black; body ferruginous; wings and tail black, the former with five white bands, and the latter with one uniform band; bill black; feet dusky. Eleven inches long. Inhabits Europe.

Genus 15.—EPIMACHUS.—Cuvier.

Generic Character.—Bill considerably longer than the head, slender, arcuated, compressed, and pointed; upper mandible slightly notched near the tip, and somewhat longer than the lower one; gape very wide, extending under the ophthalmic region; nostrils basal, lateral, open to the front, half closed by a feathered membrane; tongue short and cartilaginous; legs short; tarsus longer than the middle toe, the external one united to the first joint; fourth and fifth quills longer than the others.

Epimachus superbus.—THE SUPERB EPIMACHUS.

Plate XLI. fig. 5.

Iridescent-black, reflecting violet and green; scapulars purplish-black on the inner webs; fine golden-green on the edges and tip.

Genus 16.—DREPANIS.—Temminck.

Generic Character.—Bill very long, rounded above, thick and triangular at the base, and subulate at the point; upper mandible longer than the under one; nostrils half shut above; tongue short, cartilaginous; tarsus double the length of the middle toe; the lateral toes of equal length; third, fourth, and fifth quills longer than the rest.

Drepanis vestiaria.—THE SCARLET DREPANIS.

Plate XLI. fig. 6.

Scarlet, with the wings and tail black; the bill greatly curved, which, as well as the legs, is straw-colour; tail feathers slightly pointed at their extremities. Five inches and a half long. Inhabits the Sandwich Islands.

Genus 17.—MELIPHAGA.—Lewin.

Generic Character.—Bill generally the length of the head, shorter in some species, compressed, and somewhat arcuated; nostrils lateral, ovoid, covered by an arched membrane; tongue long, extensible, its tip furnished with cartilaginous filaments; the external toe united as far as the joint of the second phalange, the internal one as far as the first joint; hallux very strong and long, with a long bent claw.

Meliphaga Phrygia.—THE EMBROIDERED MELIPHAGA.

Plate XLIX. fig. 9.

Black; nearly the whole feathers are margined with rich golden-yellow; round the eyes there is a naked granulated yellow skin; back and breast with numerous undulated yellow or whitish crescents. Nine inches long. Inhabits New Holland.

ORDER VII.—ALCYONES.

Bill of medium size, long in some species, pointed, and nearly quadrangular, sometimes slightly arcuated, and at others straight; tarsus very short; three toes before, adhering, and one behind.

Genus 1.—MEROPS.—*Linnaeus*.

Generic Character.—Bill slightly curved, pointed, mandibles sharp at the edges; nostrils basal, lateral, ovoid, and hidden by protruded nuchal bristles; tarsus short; the three front toes united, the exterior one as far as the second joint, and the interior as far as the first joint of the intermediate toe; ballux broad at its base; the second quill the longest.

Merops carulocephalus.—THE BLUE-HEADED BEE-EATER.

Plate XLIX. fig. 10.

Upper and under parts of a beautiful red, betwixt scarlet and crimson, with clouds of green; crown of the head, throat, rump, and crissum, verdigris-blue; remiges and quills green, the inner webs of the latter tinged with red; tail of a rich reddish-brown, the feathers tipped with green, the two middle feathers tapering, double the length of the others; a black stripe from the bill passes below the eye to the margin of the blue; bill black; feet dusky yellow. Ten inches and a half long. Inhabits Asia.

Merops erythropterus.—THE RED-WINGED BEE-EATER.

Plate XLIX. fig. 11.

Crown, neck, back, smaller wing-coverts, and middle tail feathers, of a rich green; throat golden-yellow; breast reddish-

brown, black in the centre, and a cobalt-blue line at its top; abdomen and outer tail feathers fawn-colour; quills with a broad patch of reddish-brown; bill black; two central tail feathers double the length of the others. Seven inches long. Inhabits Java.

Genus 2.—ALCEDO.—Linnaeus.

Generic Character.—Bill long, straight, quadrangular, pointed, sometimes, though rarely, depressed; edges of the mandibles sharp; nostrils basal, lateral, oblique, and nearly closed by a naked membrane; legs short; tibia naked; the exterior toe attached as far as the second joint, and the interior as far as the first joint of the intermediate toe.

Alcedo ispida.—THE COMMON KINGFISHER.

Plate LII. fig. 1.

Upper parts bluish-green; the head and back of the neck with transverse undulated bars of black; wing-coverts beautifully spotted with azure-blue, the back and rump being of the same colour, but darker; ear-coverts and abdomen orange, below the ear-coverts a patch of white; the throat white; upper mandible dusky, under one and irides orange; legs and feet scarlet, nails black. Seven inches long. Inhabits Europe.

Genus 3.—DACELO.—Leach.

Generic Character.—Bill thick, strong, quadrangular, and conical; mouth with a wide gape, extending to the eyes; upper mandible longer than the under one, and notched towards its point, on each side; nostrils oblong, partly closed by a feathered membrane; tarsus shorter than the middle toe; the external toe attached as far as the third joint of the intermediate one, and the internal toe as far as the first joint; wings of medium length.

Dacelo gigantea.—THE GIGANTIC DACELO.

Plate LIV. fig. 2.

Brown above, white beneath, with gray undulated bars on the abdomen; feathers of the head elongated; wing-coverts and rump green; tail with transverse black bars. Eighteen inches long. Inhabits New Holland.

ORDER VIII.—CHELIDONES.

Bill very short, greatly depressed, and much dilated at the base; the upper mandible curved at the point; legs short; three toes before and one behind, which is frequently reversible; front toes free, or connected at the base by a short membrane; claws greatly hooked; wings long.

Genus 1.—HIRUNDO.—*Linnaeus.*

Generic Character.—Bill short, much depressed, and dilated at the base; upper mandible carinated and bent at the tip; gape extending backwards to the eyes; nostrils basal and oblong, partly covered by a membrane; tarsus short, toes and claws long and slender, three before and one behind; the exterior toe adhering as far as the first joint of the intermediate one; wings long, the first quill longest; tail forked, consisting of twelve feathers.

Hirundo rustica.—THE CHIMNEY SWALLOW.

Plate LII. fig. 2.

Bill black; forehead and throat deep orange-brown; upper parts black, with iridescent reflections; tail deeply forked, the two external feathers long and pointed; all the inner webs with a white spot, except the two middle ones; abdomen and crissum reddish-white. Six inches and a half long. Inhabits Europe.

Hirundo urbana.—THE MARTIN.

Plate LII. fig. 3.

Head, back of the neck, and upper parts of the back, glossy bluish-black; wings and greater coverts brownish-black; tail the same and forked; under parts and rump snowy-white; tarsus and toes clothed with downy-white feathers.

Genus 2.—CYPSELUS.—*Illiger.*

Generic Character.—Bill very short, depressed, dilated at the base, and triangular; the gape extending beyond the posterior angle of the eye; upper mandible deflected at the point; nostrils cleft longitudinally, at the edge of the ridge, open, with a prominent margin, beset with small feathers; tarsus very short

and thick; four toes, all directed forward, entirely free, and consisting of two phalanges each, strong, and armed with thick and hooked claws; tail consisting of ten feathers; wings very long, the first quill being somewhat longer than the second.

Cypselus unicolor.—THE ONE-COLOURED SWIFT.

Plate LII. fig. 4.

Dull black, with greenish reflections; throat paler; wings forked and very long, extending an inch and a quarter beyond the tail. Six inches and a quarter long. Inhabits Madeira.

Genus 3.—CAPRIMULGUS.—*Linnaeus*.

Generic Character.—Bill a little curved, very small, depressed at the base, and surrounded in most species by long stiff tapering bristles; upper mandible slightly bent at the tip; gape very wide; nostrils basal, tubular, covered by a membrane, surmounted by hairs, and surrounded by an elevated ring; wings long, the first quill longer than the second; tail round or forked, consisting of ten feathers; legs short, feet small, toes adhering as far as the first joint; middle claw long, and serrated at the edge, but smooth in some foreign species; hallux reversible.

Caprimulgus Europæus.—THE EUROPEAN GOAT-SUCKER, OR NIGHT JAR.

Plate LII. fig. 5.

Ash gray, spotted and streaked with yellow-brown; throat with large white spots; under parts with transverse black-brown bars; outer webs of quills scalloped with orange-brown; tail with zigzag bars of black; legs short, squamose, and feathered under the knee. Ten inches long. Inhabits Europe.

Genus 4.—PODARGUS.—*Illiger*.

Generic Character.—Bill broader than the head, short and abruptly acuminate towards the point, which is considerably bent, surrounded by stiff bristles; upper mandible spatuliform and carinated; nostrils linear, basal, and hidden by the nuchal bristles; wings shorter than the tail; tarsus short, strong; toes separate; claws nearly of equal length.

Podargus cornutus.—THE HORNED PODARGUS.

Plate LIV. fig. 4.

Back and wings reddish-brown, freckled with black; scapulars covered with small white spots; head with a horizontal tuft of long irregular feathers rising above the auricles; bill surrounded by stiff bristles; throat white, with the feathers forming a kind of smooth beard, nearly enveloping the lower mandible; tail cuneiform, reddish-brown with wavy lines. Nine inches long. Inhabits Java.

ORDER IX.—COLUMBÆ.

Bill of medium size, compressed; the base of the upper mandible covered by a soft skin in which the nostrils are situated; the point more or less bent; feet with three completely divided toes before, and one behind.

Genus 1.—COLUMBA.—*Linnaeus*.

Generic Character.—Bill of medium size, compressed, curved at the tip; base of the upper mandible covered with a soft inflated skin; nostrils longitudinal, situated in the middle of the membrane; feet with three toes before, free, the hallux articulated on the heel; wings of medium length, the second quill being the longest.

Columba palumbus.—THE RING DOVE.

Plate LII. fig. 6.

Upper parts bluish-ash colour, lower parts of the neck and breast bluish-gray, with a tinge of purplish-red, with iridescent reflections; on the sides of the neck a patch of pure white; bill orange; legs and toes pale purplish-red; irides yellow. Seventeen inches long. Inhabits Europe.

Columba turtur.—THE TURTLE DOVE.

Plate LII. fig. 7.

Head, neck, breast, and back, light wood brown, tinged with pearl gray; on each side of the neck is a patch of black feathers, margined with white; scapulars and wing coverts blackish,

edged with buff-orange ; quills brownish-black ; two middle tail feathers clove-brown, the others tipped with white ; a naked purplish red spot behind the eyes. Eleven inches long. Inhabits Europe.

Columba livia.—THE FAN-TAIL PIGEON.—Plate LII. fig. 9.
—A domesticated variety of this species.

THE CARRIER PIGEON.—Plate LII. fig. 11.—Another variety of the *livia*.

Columba Jambos.—THE JAMBOO PIGEON.

Plate LII. fig. 8.

Upper part and sides of the head, deep and brilliant red ; the whole upper surface of the body, wings, and tail, bright green ; throat deep brown ; under surface white, with a rose-coloured spot on the breast ; legs dark red ; irides reddish hazel ; bill yellowish. Nine inches and a half long. Inhabits Java and Sumatra.

Genus 2.—LOPHYRUS.—*Vieillot*.

Generic Character.—Bill straight, rather thin, and swelling a little at the point ; the upper mandible with a furrow, and bent at the tip ; the lower mandible with a groove, short, swelling at the point, and somewhat bent upwards ; nostrils small, orbicular, and situated in the groove ; tarsus long, robust, covered with round scales ; anterior toes united at the base by a small membrane ; tail with twelve feathers.

Lophyrus coronatus.—THE CROWNED PIGEON.

Plate LII. fig. 10.

Clear bluish-gray ; shoulders rust coloured ; greater wing coverts with a white bar ; ophthalmic region black ; head surmounted by a large upright crest of thinly webbed feathers ; bill black ; legs and feet gray. Size of a turkey. Inhabits India.

ORDER X.—GALLINÆ.

Bill strong, short, convex, and in some genera it is partly covered by a cere ; upper mandible bending from its base, or only

towards the tip, and projecting over the point of the lower one ; nostrils basal and lateral, pierced in a membranaceous space, and protected by a cartilaginous scale, naked in some and feathered in others ; wings generally short and concave ; tail consisting of from ten to eighteen feathers ; tarsus long ; feet with three toes before and one behind, united at the base by a membrane ; the hallux articulated upon the tarsus, above the junction of the anterior toes.

Genus 1.—PAVO.—Linnaeus.

Generic Character.—Bill without a cere, convex above, thickened and bent down towards the tip ; nostrils open ; cheeks partly bare ; tail coverts very long ; tail consisting of eighteen elongated, broad, and ocellated feathers, capable of being expanded like a fan ; tarsus considerably larger than the middle toe, with a conical spur a little way above the hallux ; head provided with a crest.

Pavo Aldrovandi.—THE ALDROVANDINE PEACOCK.

Plate LIII. fig. 1.

Upper parts and breast rich green ; breast, abdomen, and crissum, dull bluish green with crescent-shaped black spots ; wings iridescent Antwerp-blue ; the three outer quills, greater and middle wing coverts, dull fawn colour ; neck long, golden green ; cheeks gray, front blue ; crown surmounted by a crest of fifteen gray plumes, the centre ones longest and green at the points ; tail yellow-green, each feather ocellated near the point, blue in the centre and margined with reddish-fawn colour ; bill, legs, and feet, gray. Size of common peacock. Inhabits the Cape of Good Hope.

Genus 2.—GALLUS,—Brisson.

Generic Character.—Bill of medium size, strong and naked at the base ; upper mandible arcuated, convex, and bent at its tip ; head surmounted by a fleshy crest, and wattles on the throat ; ears without a cover of feathers ; three toes before, united the length of the first joint ; the hallux placed high upon the tarsus, and not resting on the ground, above which is a long conical spur ; claws blunt ; middle tail feathers arcuated ; wings short, and concave.

Gallus domesticus.—THE DOMESTIC COCK.

Plate LIII. fig. 2.

Whole plumage variegated; neck feathers elongated and linear; crest or comb notched or dentated; tail erect, arched, and compressed; subject to infinite variety of form, size, and colours; depending on food and climate; supposed to have originated in Asia.

Genus 3.—PHASIANUS.—*Linnæus*.

Generic Character.—Bill of medium length, strong; upper mandible convex, naked at the base, bent downward at the point; nostrils basal, lateral, covered by a cartilaginous scale; cheeks and ophthalmic region destitute of feathers, and covered with a verrucose skin; ears concealed by feathers; feet with three anterior toes united by a membrane as far as the first joint, the hind toe articulated upon the tarsus, above which is a conical spur in the males; claws blunt; the fourth and fifth quills the longest.

Phasianus Colchicus.—THE COMMON PHEASANT.

Plate LIII. fig. 4.

Upper part of the neck dark green with purple and violet-blue, iridescent reflections; lower part of the neck, breast, and hypochondria, deep reddish-orange, changing in different lights to light purple, or golden bronze-yellow; the feathers heart-shaped at tip; middle of the abdomen deep umber-brown; irides pale orange; crown bronzed green; tail long, consisting of tapered transversely barred feathers; bill yellowish; feet grayish-black. Three feet long. Common over Europe; supposed originally Asiatic.

Phasianus pictus.—THE GOLDEN PHEASANT.

Plate LIII. fig. 5

Golden-yellow above, scarlet beneath; crest yellow; feathers on the occiput reddish-brown, varied with black lines; tail cuneiform, and bent downwards. Two feet nine inches long. Inhabits China.

Genus 4.—LOPHOPHORUS.—*Temminck*.

Generic Character.—Bill long, thick, broad at the base and

greatly bent toward the point ; upper mandible arcuated, extending considerably beyond the lower one, and sharply edged at its extremity ; ridge elevated ; nostrils basal, lateral, and half closed by a feathered membrane ; tarsus covered on its upper part with feathers, and having a long and sharp spur ; three toes in front united by membranes ; hind toe, a little way up the tarsus, not resting on the ground ; claws blunt ; tail short and rounded.

Lophophorus Cuvieri.—CUVIER'S LOPHOPHORUS.

Plate LIV. fig. 7.

Iridescent-black, with violet reflections, the feathers with zig-zag gray lines ; rump and tail-coverts with a broad white zone ; head surmounted by a crest of long thinly-webbed plumes ; cheeks naked. Eighteen inches long. Inhabits India.

Genus 5.—POLYPLECTRON.—*Temminck*.

Generic Character.—Bill of medium size, slender, straight, and compressed ; upper mandible bent near the point ; nostrils lateral, situated in the middle of the bill, partly covered by a naked membrane ; orbits and cheeks naked ; legs slender ; tarsus long ; three anterior toes united by membranes ; hallux elevated, above which are two or more conical spurs ; tail long, rounded.

Polyplectron chinquis.—THE ARGUS POLYPLECTRON.

Plate LIV. fig. 3.

Ash-coloured, with narrow dusky striæ, and spotted with white above ; wings covered with numerous cobalt-blue eye-like spots ; secondaries with glossy blue spots ; under parts gray, with undulated dusky lines ; tail-coverts with two shining green spots near their tips, and below which are crescent-shaped spots, and margined with black. Twenty-three inches long. Inhabits China.

Genus 6.—MELEAGRIS.—*Linnaeus*.

Generic Character.—Bill short, thick, and covered with a naked skin at the base ; head and neck covered by a naked tuberculated skin ; base of the upper mandible provided with a fleshy caruncle ; throat with a longitudinal, pendulous, and carunculated wattle ; tarsus of the male with a slender obtuse

spur; wings short, rounded, and concave, the fourth and fifth quills the longest; tail consisting of eighteen feathers, capable of being expanded and elevated into a fan-shape.

Meleagris gallopavo.—THE COMMON TURKEY.

Plate LIII. fig. 3.

Dark brownish-green above, and below with a coppery metallic lustre; lesser wing-coverts ferruginous, and margined with yellow; middle feathers partly green, and the others reddish-fawn colour, with a black iridescent spot at their tips, edged with white; interscapulum dull blue-gray; rump deep fawn-colour; tail-coverts ferruginous; tail burnt umber-brown; skin of neck blue, with flesh-coloured warts; irides dark brown; bill brown; legs crimson; with a pendulous tuft of long black bristles suspended from the breast. Length four feet. Inhabits the United States.

Genus 7.—ARGUS.—*Temminck*.

Generic Character.—Bill the length of the head, compressed, straight, and naked at the base; upper mandible arcuated, and bent towards the tip; nostrils lateral, situated near the middle of the bill, partly closed by a membrane; head, cheeks, and neck, naked; legs slender, the tarsus smooth; fore toes united by membranes; hallux jointed on the tarsus; tail long, consisting of twelve feathers, ascending, compressed, the two middle feathers long, tapering.

Argus giganteus.—THE GIGANTIC ARGUS.

Plate LV. fig. 1.

Back and tail-coverts yellow fawn-colour, with ferruginous spots; secondaries with numerous eye-like spots; webs of the quills blue; tail blackish-brown, spotted with white; lower parts of the neck and under parts of the body reddish-brown. Five feet three inches long. Inhabits Surinam.

Genus 8.—NUMIDA.—*Linnaeus*.

Generic Character.—Bill short, thick, arcuated, with a warted membrane at its base, and a carunculated wattle suspended under the lower mandible; nostrils placed in the cere, divided by a cartilage; head naked in some species, clothed with feathers

in others; the crown with a callous horn or crest; tarsus smooth; three fore toes united by a membrane; the hallux articulated to the tarsus; tail short, bent downward.

Numida meleagris.—THE PINTADO, OR GUINEA FOWL

Plate LVI. fig. 1.

Bluish-gray, thickly sprinkled with white spots; head and upper parts of the head and neck covered with a bluish skin; crown with a callous subconic protuberance; legs lead-coloured. Twenty-two inches long. Inhabits Africa.

Genus 9.—PAUXI.—*Temminck*.

Generic Character.—Bill short, strong, arcuated, compressed, and convex; base of the upper mandible dilated into a hard corneous substance; nostrils basal, lateral, open below; tarsus long, strong, and smooth; three anterior toes united by membranes; hallux articulated to the tarsus, touching the ground at its point; wings short.

Pauxi galeata.—THE GALEATED CURASSOW.

Plate XLII*. fig. 10.

Head, neck, and lesser wing-coverts, dark purplish-brown, with iridescent reflections of violet and blue; breast, middle, larger wing-coverts, quills, and tail, umber-brown, reflecting green and gold; abdomen and crissum white; tail tipped with white; cere purple; head surmounted by an upright livid crest; bill and ophthalmic circle bright scarlet; front of the tarsus flesh-coloured, back blue. Two feet and a half long. Inhabits South America.

Genus 10.—CRAX.—*Linnaeus*.

Generic Character.—Bill long, robust, compressed, incurved from the centre to the point, with a cere at its base; nostrils lateral, situated in the cere, partly covered, open in front; top of the head surmounted by a crest of arched protruding feathers; three anterior toes adhering at the base; hallux articulated to the tarsus; tail broad, pendulous.

Crax ulector.—THE CRESTED CURASSOW.

Plate LVI. fig. 2.

Deep iridescent black, reflecting green upon the head, crest, neck, back, wings, and upper part of the tail; abdomen and crissum dull white; crest three inches long, occupying the whole upper surface of the head; ophthalmic region naked, yellow towards the bill. Size of a turkey. Inhabits Mexico.

Genus 11.—PENELOPE.—*Linnaeus*.

Generic Character.—Bill medium size, broader than deep, compressed, and arcuated at tip; nostrils lateral, half covered by a membrane, and open in front; cheeks naked; a longitudinal wattle beneath the bill, extending down the throat, capable of being inflated or depressed at will, carunculated in the middle; tarsus long, reticulated; anterior toes strong, united by membranes; hallux parallel with the toes; wings short, the sixth quill the longest.

Penelope marail.—THE MARAIL.

Plate LIV. fig. 6.

Sinciput, neck, back, wings, rump, and tail, olive-green; breast darker green; abdomen brown; each feather of the last two being margined with white; front, crown, sides of the neck, and bill, gray; ophthalmic region, throat, and legs, scarlet; quills ferruginous; under tail feathers rich brown. Twenty-six inches long. Inhabits Guiana.

Genus 12.—TETRAO.—*Linnaeus*.

Generic Character.—Bill short, robust, arcuated above, convex, and bent downwards at the tip, naked at the base; nostrils basal, half closed by an arcuated scale above, and hidden by small feathers; tarsus clothed with feathers, which, in some species, extend the length of the claws; three toes before, united to the first joint; the hallux margined by asperities.

SECTION I.—With the tarsus only feathered; edges of the toes deeply bordered with a fringed margin.

Tetrao urogallus.—THE COCK OF THE WOODS.

Plate LVI. fig. 3.

Head and neck with transverse lines of black and gray; upper parts dusky, transversely waved with ash colour; throat black, waved; axilla white; breast with iridescent-green reflections, tail black, rounded; bill white. Two feet ten inches long. Inhabits Norway and Sweden.

SECTION 2.—With tarsus and toes feathered; tail square at the end.

Tetrao lagopus.—THE PTARMIGAN.

Plate LVI. fig. 4.

White; ophthalmic region black, over which is a scarlet fringed membrane; irides yellowish-brown; bill and claws black. Fourteen inches long. Inhabits Europe and America.

Genus 13.—PTEROCLES.—*Temminck*.

Generic Character.—Bill of medium length, compressed and slender in some species; upper mandible straight, slightly bent towards the point, nostrils basal, partly closed by a membrane; front, or acrotarsium, of the tarsus feathered; the hinder part, or planta, naked; three anterior toes united the length of the first joint; hallux very small, and articulated high on the tarsus; tail subconic, in some species the two middle feathers elongated and filiform; wings long, acuminate, reaching to within a third of the tip of the tail, the first quill longest.

Pterocles bicincta.—THE DOUBLE-COLLARED PTEROCLES.

Plate LXVIII. fig. 1.

Upper parts dull chestnut colour, transversely barred with black; epigastrium, abdomen, and crissum, dusky, with transverse arrow-shaped umber-coloured bands; wings chestnut above, with the secondaries fawn-coloured; greater wing-coverts with transverse bands of dark burnt umber-brown, edged with white, legs and feet fawn, the front of the tarsus transversely barred with brown; breast with a collar of ochre-yellow, beneath which is another of blackish-brown; front of head gray. Ten inches long. Inhabits Africa.

Genus 15.—SYRRHAPTES.—Illiger.

Generic Character.—Bill short, conical, slender; upper mandible slightly bent, having a groove along the ridge; nostrils basal, lateral, partly covered by feathers; feet with three anterior toes only; tarsus and toes covered with woolly feathers; tail subconic, the two central feathers much elongated, and filiform at the tips; wings long, extending nearly as far as the point of the tail, with the first quill prolonged, and filiform.

Syrrhaptes Pallasii.—PALLAS'S SYRRHAPTES.

Plate LIV. fig. 8.

Head and neck pale fawn-colour, mixed with gray; back, tail, breast, upper wing-coverts, secondaries, and scapulars, fawn-colour, with transverse circular bands of black; quills black, margined with pale fawn, outer quill gray; abdomen with a broad band of bluish-black; irides reddish-orange; bill yellow; legs cream-yellow; nails black. From point of bill to the tip of the tail, twenty-seven inches. Inhabits Tartary.

Genus 16.—ORTYX.—Stephens.

Generic Character.—Bill very short, robust, greatly arcuated, compressed, naked at the base, and bent at the point; nostrils basal, lateral, and partly closed by a membrane; legs strong; three toes before, united at the base by a membrane, and a strong hallux, which rests on the ground; tail long, wedge-shaped.

Ortyx Californica.—THE CALIFORNIAN QUAIL.

Plate LVI. fig. 6.

Dusky-brown, lead-coloured towards the tail; breast with a broad band of dark gray; front of head ash-gray; blackish-brown behind; head surmounted by a crest of five or six black feathers, an inch and a half long, curved forward at the point; back and neck with black margined feathers; throat black, surrounded by a gorget-shaped band of white feathers; a white stripe passes over the eyes; bill and legs dusky. Ten inches long. Inhabits California.

Genus 17.—PERDIX.—Latham.

Generic Character.—Bill short, strong, naked at the base;

upper mandible convex, with the point bending considerably downwards; nostrils basal and lateral, placed in a large membrane, partly concealed by an arched naked scale; wings short, concave, fourth and fifth quills longest; tarsus long, furnished, in the male, with a short spur; feet with three anterior toes, united at the base by a membrane, and a hallux behind; tail consisting of from fourteen to eighteen feathers, slanting downwards.

This genus has been divided into four sections:—I. Males having one or two spurs. II. Tarsus provided with a callosity instead of a spur, or without one. III. Bill deeper than broad; orbits naked; and having a short tail. IV. Tail very short, hidden by the feathers of the rump; first quill the longest.

Perdix cinerea.—THE COMMON PARTRIDGE.

Plate LVI. fig. 5.

Upper parts brown, with transverse black lines and spots; under parts cream-yellow, mixed with gray, having zigzag black lines; behind the eye a naked papillose skin; irides brown; bill pale gray; quills blackish-gray, with brown bars; tail reddish-orange; legs and toes blue gray. Twelve inches long. Inhabits Europe.

Genus 18.—CRYPTONYX.—*Temminck*.

Generic Character.—Bill short, thick, and compressed; mandibles of equal length, the upper one straight and a little bent at the tip; nostrils lateral, and longitudinally cleft, placed near the middle of the bill, and covered above by a broad naked membrane; tarsus long; feet with three anterior toes, united at the base; hallux placed high on the tarsus, and not touching the ground; without a claw; wings short.

Cryptonyx coronatus.—THE CROWNED CRYPTONYX.

Plate LV. fig. 3.

Dark violet; back and rump dark green; crown white; temples naked; with an upright chestnut-coloured crest extending from the front to the sinciput; base of bill having six nuchal bristles. Ten inches long. Inhabits Sumatra.

Genus 19.—TINAMUS.—*Latham.*

Generic Character.—Bill slender, slightly concave above, depressed, broader than deep, tip obtuse; the ridge distinct, forming a large nasal furrow in the upper mandible; nostrils lateral, ovate, placed in the furrow; lower mandible somewhat arcuated in the centre; tarsus long, frequently with asperities behind; toes short, entirely divided; hallux very short; tail awanting, or very short; wings short; fourth, fifth, and sixth quills the longest.

Tinamus sylvicolus.—THE BARRED TINAMOO.

Plate LVII. fig. 1.

Head brownish-ash colour; back, wing-coverts, and tail, barred with waved stripes of black, alternating with dusky-brown and chestnut; chin and gula gray; throat, and sides of the neck, as far as the bottom of the gula, bright orange-brown; epigastrium, abdomen, and crissum, gray, with transverse undulated alternating bars of chestnut and black; upper mandible blue; tarsus dusky in front, dull chestnut behind. Nine inches long. Inhabits Brazil.

Genus 20.—HEMIPODIUS.—*Temminck.*

Generic Character.—Bill slender, straight, greatly compressed, having an elevated ridge, and bent towards the tip; nostrils basal, lateral, and partly closed by a naked membrane; tarsus long; feet with three anterior toes, and no hallux; tail with slender feathers, nearly concealed by the coverts above it, first quill the longest.

Hemipodius tachydromus.—THE ANDALUSIAN TURNIX.

Plate LVII. fig. 2.

Back black, with zigzag black and red stripes; throat white; breast red, with yellow bordered feathers, which have a black spot near the point; crown of the head brown, with three reddish-yellow longitudinal bands. Six inches long. Inhabits Europe.

ORDER XI.—ALECTORIDES.

Bill somewhat shorter than the head, or of the same length, strong, robust; the upper mandible convex, and frequently hooked at the point; tarsus long and slender; three toes before and one behind; the hallux articulated a little way up the tarsus.

Genus 1.—PSOPHIA.—Linnaeus.

Generic Character.—Bill short, curved, much bent at the point; upper mandible considerably longer than the under one; nasal furrow broad, and extended; nostrils situated near the middle of the bill, wide, placed diagonally, and covered behind by a naked membrane; legs long and slender; the middle and external toe united, the internal one separated; the hallux articulated interiorly, and parallel with the other toes; wings short and concave; tail very short.

Psophia crepitans.—THE GOLDEN-BREASTED TRUMPETER.

Plate LXVIII. fig. 4.

Black, with a gray back; breast iridescent-blue, with green reflections; orbits naked, red; feathers of the head short and downy; scale-shaped in front; pendulous, silky, and ferruginous, on the shoulders; scapulars long, pendant. Twenty-two inches long. Inhabits South America.

Genus 2.—DICHOLOPHUS.—Illiger.

Generic Character.—Bill longer than the head, thick, arcuated, depressed at the base, compressed at the tip, and a little hooked; gape wide, extending under the eyes; nostrils small, closed by a membrane; legs long and slender; toes short, thick, the anterior one united at the base by a membrane; the hallux articulated a little way up the tarsus, and not touching the ground; claws short, blunt, and strong; wings without a spine.

Dicholophus cristatus.—THE CRESTED DICHOLOPHUS.

Plate LXVIII. fig. 2

Upper part of the head and back white; neck, throat, and breast, pale brown; long, with slender shafts. Inhabits Brazil.

Genus 3.—GLARIOLA.—Brisson.

Generic Character.—Bill short, convex, compressed near the point; upper mandible curved from its centre; nostrils basal, lateral, and obliquely cleft; legs feathered to the knee; tarsus long and slender; the exterior toe united to the intermediate one by a short membrane, the interior toe free; hallux articulated to the tarsus; claws long, subulate; wings very long.

Glariola torquata.—THE COLLARED PRATINCOLE.

Plate LV. fig. 2.

Upper parts grayish-brown; throat reddish-white, bordered by a narrow black crescent-shaped band, reaching from the base of the bill on one side, to the same point on the opposite side; quills and point of the tail feathers black; ophthalmic region red. Nine inches and a half long. Inhabits Europe.

Genus 4.—PALAMEDEA.—Linnaeus.

Generic Character.—Bill short, convex, and somewhat conical; compressed through its whole length; greatly curved at the point, and having a large nasal furrow; head small, covered with down, having a slender flexible horn rising from the forehead, pointing forward; nostrils lateral, ovate, and open, situated near the middle of the bill; legs short and thick; three toes before, the lateral connected to the middle one by a short membrane; the hallux formed for resting on the ground; wings large, with a spur on the flexure of the wing.

Palamedea cornuta.—THE HORNED SCREAMER.

Plate LVII. fig. 3.

Black above and white beneath; horn on the forehead four inches long, tapering and flexible, inclosed in a sheath; irides golden-yellow; bill and legs black; wings with two strong triangular spurs on the bastards. Two feet four inches long. Inhabits South America.

Genus 5.—CHAUNA.—Illiger.

Generic Character.—Bill shorter than the head; convex and somewhat conical, slightly arcuated, and curved at the tip; lores naked; nostrils oblong, pierced through, and situated a little way from the base of the bill; legs long, slender; toes long,

united by membranes ; wings with two retrousse spurs, one on the flexure, and the other on the axilla.

Chauna chavaria.—THE FAITHFUL JACANA.

Plate LXVIII. fig. 3.

The whole upper and under parts grayish-white ; middle wing-coverts dark purplish-gray ; the larger coverts, secondaries, and upper quills, umber-brown ; the external quills gray ; throat with a broad belt round its centre ; tail dark-gray, central feather brown ; head furnished with a double crest, feathers situated in the sinciput pendulous ; ophthalmic region orange ; irides orange-yellow ; bill yellow ; legs pale rose-colour. About thirty inches long. Inhabits America.

ORDER XII.—CURSORES.

Bill of medium size, or short in some species ; legs long, naked above the knee ; and with two or three anterior toes only.

Genus 1.—STRUTHIO.—*Linnaeus*.

Generic Character.—Bill straight, obtuse, depressed at the point, which is somewhat rounded and angulated ; mandibles of equal length, flexible, and gape very wide ; nostrils longitudinal, situated near the middle of the bill ; legs very long, strong, and muscular, entirely divested of feathers ; feet with two toes directed forward, connected by a strong membrane at their base, the exterior being much shorter than the interior one, the latter only being furnished with a strong, obtuse, hoof-like claw ; the tibia very fleshy to the knee-joint ; the tarsus with large scales on the front, and reticulated behind, with a distinctly developed heel ; wing short, unsuited for flight, composed of long, flexible plumes, divested of cohesion between their barbs, and having a double spur on the axilla.

Struthio camelus.—AFRICAN OSTRICH.

Plate LVI. fig. 7.

Black ; plumes of wings and tail black, gray, and white ; head small ; neck very long, the upper half covered with thin down,

through which the red hue of the skin is distinctly visible ; ears naked on the outside and hairy internally ; eyes large, prominent, and brilliant, irides yellow-orange ; upper eyelid mobile provided with eyelashes. Eight feet high. Inhabits Africa.

Genus 2.—*RHEA.*—*Brisson.*

Generic Character.—Bill nearly straight, slightly hollowed in the middle, of medium length, soft, strong at the base, depressed, and covered by a membrane ; rounded at the point ; nostrils towards the point, longitudinally cleft and open ; legs long ; front of tarsus furnished with large scales, and small circular ones behind, with a distinctly developed heel at bottom ; feet with three anterior toes, furnished with strong, long, obtuse claws, ridged on their sides ; wings short, provided with plumes of different lengths, and having a spur at their point ; without a tail.

Rhea Americana.—*AMERICAN OSTRICH.*

Plate LVII. fig. 5.

Head white ; neck and body cream-yellow, lineated with black, clouded with brown ; upper plumes of the wings gray, lower ones bright umber-brown ; rump plumes pure white ; crissum naked ; ophthalmic region and bill yellow ; irides orange-brown ; eyes and front surrounded by numerous upright small hairs and plumes. Six feet high. Inhabits South America.

Genus 3.—*DROMAIUS.*—*Vieillot.*

Generic Character.—Bill straight, the edges much depressed, somewhat carinated at the top, and rounded at the point ; nostrils large, oblique, situated forward near the edge of the upper mandible, and covered by a membrane ; legs strong ; tarsus scaly, with a heel at bottom ; feet with three toes directed forward, furnished with strong, slightly bent claws ; wings very short.

Dromaius ater.—*FMU.*

Plate XLVIII. fig. 2.

Chicks and ophthalmic region naked, blue ; front, crown, and back of the neck, with long upright feathers ; whole plumage brown, of different shades, consisting of pendulous thinly

webbed plumes of a hairy texture ; tibia serrated behind. Seven feet high. Inhabits New Holland.

Genus 4.—CASUARIUS.—Brisson.

Generic Character.—Bill straight, of medium length, narrow, compressed, with a keeled ridge ; crown and front surmounted by an upright, sub-conic, bony crest, somewhat bent towards the point, the tip turned down ; lower mandible soft, flexible, and angular near the point ; nostrils round, situated in the lateral part, near the point of the bill ; legs robust, muscular ; tibia naked a little way above the knee ; tarsus reticulated, with a heel at base not much developed ; feet with three anterior toes, furnished with strong, smooth, conical nails ; intermediate toe longest, external and internal toes nearly of equal length ; wings short, not fitted for flight ; the remiges resembling the barbs of feathers.

Casuarus galeatus.—GALEATED CASSOWARY.

Plate LVIII. fig. 1.

Black ; webs of the feathers resembling hair ; crest yellow horn-coloured ; cheeks and throat purple, changing on the crown and nape to scarlet ; caruncle on each side of the neck scarlet ; legs and feet gray. Five feet and a half long. Inhabits India.

Genus 5.—OTIS.—Linnaeus.

Generic Character.—Bill of medium length, nearly straight, compressed ; point of upper mandible slightly arcuated ; nostrils lateral, oval, open, and removed from the base ; legs long, naked above the knee ; tarsus reticulated ; feet with three anterior toes only, united at the base, and bordered by membranes ; wings of medium length ; the third quill longest.

Otis tarda.—THE GREAT BUSTARD.

Plate LVIII. fig. 3.

General colour of the plumage white ; the upper parts barred and mottled with buff-orange and cream-yellow ; breast and sides with transverse reddish buff-coloured bars ; middle of abdomen and crissum white ; from the base of the under mandible there is a kind of beard or mustache of long pendulous wiry feathers ; head and nape blue-gray ; a streak of black from the

crown to the occiput; gula with a bluish-black skin; at the bottom of the nucha a space destitute of feathers, covered with down; irides reddish brown; legs black, scaly. Three feet three inches long. Inhabits Europe.

Genus 6.—CURSORIUS.—*Latham.*

Generic Character.—Bill shorter than the head, depressed at the base, somewhat curved near the point, and sharp at the tip; nostrils ovate, with a small callosity behind them; legs long and slender; feet with three anterior toes only, entirely divided, the interior one shortest; claws small, obtuse; wings extending beyond the tail; second quill the longest.

Cursorius Asiaticus.—THE COROMANDEL COURIER.

Plate XLII*. fig. 2.

Crown of the head, neck, breast, and abdomen, bright chestnut; wings, back, and tail-coverts, yellow fawn-colour; crissum and tail dull-white; venter with a black longitudinal streak; a black streak reaches from the base of the bill across the eyes, to the nape of the neck, over which is another streak of white; bill gray; quills black; legs and feet pale yellow-green. Eight inches long. Inhabits Coromandel.

ORDER XIII.—GRALLATORES.

Bill varied in its form; generally straight, in the shape of an elongated cone, compressed, and sometimes, though seldom, depressed; legs long, slender, frequently naked above the knee; feet with three toes before and one behind; the hallux articulated, on a level with the anterior toes; sometimes a little higher.

SUB-DIVISION I.—Having three toes only.

Genus 1.—CEDICNEMUS.—*Temminck.*

Generic Character.—Bill somewhat longer than the head, straight, robust, compressed at the point, with a carinated ridge; lower mandible forming an angle with the upper one; nostrils

cleft longitudinally, and open in front, situated in the middle of the bill; legs long and slender; tarsus with a distinct heel; feet with three anterior toes only, united as far as the second joint by a membrane, which extends along the toes; tail cuneiform.

Ædicnemus crepitans.—COMMON THICK-KNEE.

Plate LXVI. fig. 6.

Head, neck, and upper parts of the body, pale tawny brown; under parts the same, but paler; venter, and crissum, cream-yellow; the whole plumage with longitudinal brown streaks down the middle of each feather; a pale streak both above and below the eyes; bill yellow at the base, black at the tip; quills black; legs yellow; claws black. Sixteen inches long. Inhabits Europe.

Genus 2.—CALIDRIS.—*Illiger*.

Generic Character.—Bill of medium size, slender, straight, soft, and flexible throughout, compressed from the base to the point, depressed towards the point, which is flattened and obtuse; nostrils lateral, and longitudinally cleft; legs slender, tarsus longer than the foot; feet with three anterior toes, divided nearly from the base; wings of medium size, the first quill the longest.

Calidris asenaria.—SANDERLING.

Plate LVIII. fig. 4.

Upper parts, and hypochondria, whitish-ash, with a dark gray line in the centre of each feather; face, throat, and abdomen, white; wings bordered with black; tail ash-coloured, with a white margin. Seven inches long. Inhabits Europe.

Genus 3.—FALCINELLUS.—*Cuvier*.

Generic Character.—Bill arcuated, soft, compressed throughout, depressed at the point, with an elongated nasal furrow; nostrils basal, lateral, linear; tarsus longer than the middle toe; feet with three anterior toes only.

Falcinellus pygmaeus.—PIGMY CURLEW.

Plate LVII. fig. 7.

Back and scapulars black, edged with reddish-brown; rump

and under parts white ; quills and exterior tail feathers margined with white ; head dusky-brown. Six and a half inches long. Inhabits Europe.

Genus 4.—HIMANTOPUS.—Brisson.

Generic Character.—Bill long, slender, retrousse, depressed at the base, and compressed at tip ; mandibles laterally grooved about half their length ; nostrils lateral, linear, oblong ; legs very long and slender ; feet with three anterior toes, the middle one united by a broad membrane to the inner toe by a rudimentary one ; claws small and flat ; wings very long, the first quill longer than the rest.

Himantopus melanopterus.—BLACK-WINGED LONG SHANK.

Plate LVII. fig. 6.

Crown, back of the head, neck, back, and wings, iridescent-black ; nape and occiput spotted with white ; tail ash-coloured ; face, neck, and under parts, white with a rosy tint. Fourteen inches long. Inhabits Europe.

Genus 5.—HÆMATOPUS.—Linnæus.

Generic Character.—Bill long, robust, channelled, compressed, point cuneiform and much compressed ; nostrils lateral, situated in the channel ; legs stout and muscular ; feet with three anterior toes only, the exterior one united to the middle one the length of first joint ; interior toe margined by a rudimentary membrane ; wings extending to the end of the tail, the first quill longest.

Hæmatopus ostralegus.—OYSTER-CATCHER.

Plate LVIII. fig. 5.

Upper parts and tail deep black ; rump, middle wing feathers, breast, abdomen, and crissum, white ; ophthalmic region, bill, and legs, orange. Fifteen and a half inches long. Inhabits European coasts.

Genus 6.—CHARADRIUS.—Linnæus.

Generic Character.—Bill somewhat shorter than the head, slender, straight, and compressed ; mandibles gibbous, and sub-cone towards the point ; nostrils situated in the nasal furrow ; legs slender ; tibia half naked ; feet with three anterior toes, the

exterior one connected with the middle toe by a short membrane, the interior one quite free; tail slightly rounded or straight; wings as long as the tail, the second quill longest.

Charadrius plumialis.—GOLDEN PLOVER.

Plate LVIII. fig. 6.

Upper parts brownish-black; spotted on the edges of the webs with golden-yellow; neck and breast paler; tail dusky with yellow bars; legs black; bill dusky; irides hazel.

SUB-DIVISION II.—Feet furnished with four toes.

Genus 7.—VANELLUS.—Brisson.

Generic Character.—Bill short, slender, straight, slightly gibbous towards the point; nostrils lateral, and cleft longitudinally; legs slender; tibia half naked; feet with three toes before and one behind, the central toe connected with the external one by a short membrane; the hallux very short, or rudimentary, placed higher than the toes; wings longer than the tail, the third and fourth quills longest.

Vanellus cristatus.—LAPWING.

Plate LIX. fig. 1.

Deep glossy iridescent-green above; sides of the neck, abdomen, and crissum, white; head furnished with a long, horizontal, thin black crest turned up at the point; crown, throat, and breast, black. Twelve and a half inches long. Inhabits Europe.

Genus 8.—STREPSILAS.—Illiger.

Generic Character.—Bill of medium size, sub-conic, straight, strong at the base, slightly retrousse, a little truncated and hard at tip; ridge depressed; nostrils basal, lateral, partly closed by a membrane; legs strong; tibia partly naked above the knee; feet with three toes before and one behind, the anterior ones connected at the base by a very short membrane; the hallux articulated to the tarsus, and not resting on the ground; wings acuminate, the first quill the longest.

Streptilas collaris.—TURNSTONE.

Plate LIX. fig. 2.

Black, variegated with white, and rusty orange above ; breast, abdomen, and crissum, white ; bill black ; irides and legs orange. Eight inches long. Inhabits Europe.

Genus 9.—GRUS.—Pallas.

Generic Character.—Bill length of the head, longer in some species, robust, straight, compressed, somewhat obtuse at tip ; lateral base of the mandible deeply furrowed ; ridge elevated ; nostrils situated in the middle of the bill, closed at the back by a membrane ; ophthalmic region and base of the bill naked, and papillose, or covered with feathers ; legs long ; lower half of the tibia naked ; feet with three toes before and one behind, the intermediate one united to the external toe by a small rudimentary membrane, the interior one free ; hallux articulated higher up on the tarsus ; the remiges as long as the quills, the second, third, and fourth quills longest.

Grus cinerea.—COMMON CRANE.

Plate LIX. fig. 3.

Ash-coloured ; throat and occiput dusky ; front of head and ophthalmic region black, and somewhat carinated, with a white space behind the eyes ; crown divested of feathers and red ; secondary feathers long, arched, and filamentary ; bill greenish-black ; legs dusky black. Three feet ten inches long. Inhabits Europe.

Genus 10.—ANTHROPOÏDES.—Vieillot.

Generic Character.—Bill about the length of the head, laterally compressed, entire, thick, convex, and furrowed near the point ; nostrils concave, ovoid, open, situated in the ridge of the bill, and covered behind by the membrane ; tarsus long, smooth, and reticulated ; feet with three toes, united at the base by a membrane, the interior one free ; wings long, first, second, third, and fourth quills longer than the others ; the second is prolonged beyond the first.

Anthropoides pavonina.—CROWNED CRANE.

Plate LIX. fig. 5.

Black, with a slight tinge of lead-colour ; quills black, secondaries reddish-brown ; wing-coverts white ; head surrounded by a crest of filamentous feathers, yellow below and tipped with black ; ophthalmic region rose-colour ; bill and legs black. Four feet high. Inhabits Western Africa.

Genus 11.—ARAMUS.—*Vieillot*.

Generic Character.—Bill somewhat longer than the head, straight, hard, and bending slightly at the point ; lower mandible a little turned in front and concave behind, angular and pointed ; nostrils lateral, remote from the base of the bill ; legs robust, long ; feet with three toes before, quite divided, with a long hallux resting on the ground ; nails long and bent ; wings medium sized, the third quill the longest.

Aramus scolopacea.—THE SCOLOPACEOUS HERON.

Plate LVII. fig. 8.

Head, neck, and breast, reddish-fawn colour, the centre of each feather being white ; wings, back, tail, tibial feathers, and crissum, chestnut-brown ; the wing-coverts spotted with white ; throat and cheeks white ; irides yellow ; bill brown ; legs dusky brown. Twenty-five inches long. Inhabits Cayenne.

Genus 12.—ADREA.—*Linnaeus*.

Generic Character.—Bill as long as the head, longer in some species, straight, compressed, and pointed ; upper mandible slightly sulcated, and ridge rounded ; nostrils lateral, situated near the base of the bill, longitudinally cleft in the groove, and partly hid by a membrane ; orbits and lores naked ; legs long, slender, the lower part of the tibia without feathers ; feet with three toes before, the middle one connected with the outer by a short membrane ; claws long, bent, and compressed, the middle one laterally dentated ; hallux long, resting on the ground.

SECTION I.—Bill longer than the head ; upper mandible nearly straight ; a considerable portion of the tibia naked.

Adrea cinerea.—THE COMMON HERON.

Plate LIX. fig. 4.

Blue-gray ; a long pendulous crest rising from the sinciput ; back of the neck with a mane-like white crest ; forehead, neck, abdomen, and crissum, white ; sides of the breast and flanks deep black ; on the throat a longitudinal row of black and cinereous spots. Three feet long. Inhabits Europe.

Adrea garzetta.—THE LITTLE EGRET.

Plate LIX. fig. 6.

White, with a pendant crest ; a series of long pointed feathers hang along the back and flow beyond the tail, with strong shafts, and loose fibrous webs, having a tuft of similar feathers on each side of the breast ; legs dusky black. Two feet long. Inhabits Europe.

SECTION II.—Bill about the length of the head, greatly compressed ; upper mandible slightly bent.

Adrea stellaris.—THE COMMON BITTERN.

Plate LXI. fig. 2.

Yellow-red ; sides with zigzag brown lines ; the lower part of the neck with brown and red spots ; and beneath with large black longitudinal stripes ; quills with alternate stripes of red and gray. Twenty inches long. Inhabits Europe.

Genus 13.—CICONIA.—*Temminck*.

Generic Character.—Bill long, straight, robust, cylindrical, shape of an elongated cone, ridged, rounded, parallel with the head ; under mandible slightly retrousse ; nostrils situated towards the base of the bill, longitudinally cleft in a groove ; ophthalmic region naked ; legs long ; feet with three toes before, united the length of the first joint ; hallux articulated, parallel with the toes ; wings of medium size, third and fourth quills the longest.

Ciconia alba.—THE COMMON STORK.

Plate LXI. fig. 3.

White ; scapulars and wings black ; bill and feet orange-red ;

ophthalmic region black ; irides brown. Three and a half feet long. Inhabits Europe.

Genus 14.—ARGALA.—Brown.

Generic Character.—Bill greatly longer than the head, very strong, conical, and slightly curved from the base, which is as thick as the head, tapering to an obtuse point ; ridge but little elevated ; nostrils ovate, situated near the base of the bill ; head and neck divested of feathers ; neck with a long naked fleshy pendulous appendage ; nape covered with down in place of feathers ; legs long ; tibia wholly naked ; feet with three anterior toes united to the first joint by a scalloped membrane ; hallux rather long, and resting on the ground ; wings of medium length, the first quill longest.

Argala gigantea.—GIGANTIC ARGALA, OR ADJUTANT.

Plate LXII. fig. 1.

Back, wings, and tail, dull black ; under tail-coverts consisting of plumes of pure white ; abdomen and crissum white ; throat and pouch flesh-colour ; bill livid yellow, with a beard of feathers under it ; irides nearly white ; legs dull black. Seven feet high. Inhabits Asia.

Genus 15.—MYCTERIA.—Latham.

Generic Character.—Bill very long, thick, smooth, laterally compressed, acute ; upper mandible trigonal, straight ; lower mandible more thickened and retrousse ; nostrils longitudinal, narrow, situated remote from the base of the bill ; legs long, strong ; three quarters of the tibia naked ; feet with three anterior toes, slightly united at their base by a membrane ; hallux situated high on the tarsus, with its point resting on the ground ; wings long, the third, fourth, and fifth quills longest.

Mycteria Americana.—THE AMERICAN JABIRU.

Plate LV. fig. 7.

White ; bill, head, upper part of the neck, and legs, black ; lower part of the neck flesh-coloured and naked ; irides red. Four feet high. Inhabits America.

Genus 16.—ANASTOMUS.—Illiger.

Generic Character.—Bill thick, greatly compressed, gaping towards the middle; margin of the upper mandible serrated on its outer half; upper and under mandibles with an elevated ridge, bordered by a furrow; nostrils linear, situated near the base of the bill; legs long, slender; feet with three anterior toes, the exterior ones united by a short membrane; hallux articulated on the same level as the claws; wings rather long, first and second quills longest.

Anastomus Coromandelianus.—COROMANDEL ANASTOMUS.

Plate LVII. fig. 4.

White; wings below the middle feathers iridescent-black; ophthalmic region black; irides orange; bill and legs yellow. Fifteen inches long. Inhabits India.

Genus 17.—SCOPUS.—Brisson.

Generic Character.—Bill compressed, bent at the tip; upper mandible with an elevated ridge and a groove under it; lower mandible with a produced ridge extending half its length; nostrils oblique near the base of the bill; tarsus longer than the middle toe; feet with three anterior toes, the outer ones connected by a membrane the length of the first joint; hallux resting on the ground; wings of medium length, third, fourth, and fifth quills longest.

Scopus umbretta.—THE TUFTED UMBER.

Plate LX. fig. 5.

Yellowish umber-coloured, paler below; head surmounted by a large pendulous tuft of loose feathers; tail with several transverse broken bands; throat gray; bill lead-coloured; legs dusky. Twenty inches long. Inhabits Africa.

Genus 18.—PHENICOPTERUS.—Linnaeus.

Generic Character.—Bill thick, strong, deeper than broad, naked at the base; the upper mandible nearly straight about half its length, where it is slightly arcuated, and from whence it suddenly bends downwards to within about two thirds its length, where it becomes suddenly hooked, and terminates with a lanceolate point; the under edge corresponds somewhat in

form with the upper side, where it is sharp and cutting ; from nearly the base, rises a notched ridge which traverses the middle of the mandible and ends near the tip, beneath this it is hollowed, with some waved striae next the base ; under mandible waved and arcuated above and beneath, with a longitudinal ridge in its centre, suddenly drawn to a point at tip, when closed, the under mandible envelopes the upper one the length of the ridge ; nostrils oblong, ovate, longitudinal, situated near the base of the bill ; legs very long, with three anterior toes webbed to their points ; the hallux small, articulated high on the tarsus ; wings of medium size, the second quill the longest.

Phœnicopterus ruber.—THE RED FLAMINGO.

Plate LXI. fig. 4.

Head, back, lower parts, and scapulars, rose-colour ; wings scarlet ; quills deep black ; the long red secondaries exceeding the quills in length ; bill deep blood-red at the base, and black towards the tip ; legs red. Four feet four inches long. Inhabits the four Continents.

Genus 19.—RECURVIROSTRA.—*Linnaeus*.

Generic Character.—Bill very long, slender, and weak, depressed, and retrousse at the point ; upper mandible longitudinally channelled, and the under one laterally ; nostrils linear, situated near the base of the bill, elongated ; legs long, and strong in proportion to the weight of the bird ; feet with three anterior toes, united their whole length ; hallux short, articulated high on the tarsus ; wings acuminate, the first quill longest.

Recurvirostra ovocetta.—THE AVOCET.

Plate LXI. fig. 5.

White ; top of the head and wings black ; middle and larger coverts white ; bill and feet gray. Eighteen inches long. Inhabits Europe.

Genus 20.—CANCROMA.—*Linnaeus*.

Generic Character.—Bill somewhat longer than the head, depressed, broader than deep, dilated towards the middle, the ridge prominent, with a groove on each side ; upper mandible

like a boat turned keel upwards; the lower one pointed, the edges strong and sharp; nostrils diagonal, situated in the nasal groove; three toes before, united at their base by a small membrane; hallux nearly parallel with the toes; wings of medium length, first and sixth quills equal, the second, third, and fourth, longer than the others.

Cancroma cochlearia.—THE BOAT BILL.

Plate LX. fig. 4.

Back, back of the neck, wing-coverts, and tail, silvery-gray; cheeks, throat, upper part of the breast, quills, and tibia, white; abdomen and crissum chestnut-brown; head large; sinciput furnished with a long pendulous crest of dark gray feathers; front, chin, and legs, green; a scarlet circle round the eyes. Twenty-two inches long. Inhabits South America.

Genus 21.—PLATALEA.—*Linnaeus*.

Generic Character.—Bill very long, much compressed, and dilated towards its margins and point, which is spatuliform, or spoon-shaped; upper mandible channelled; nostrils approximate, open, bordered by a membrane remote from the bill; face and head wholly, or partially, without feathers; legs long; lower half of tibia naked; feet with three long anterior toes, connected the length of the second joint by membranes; the hallux long, and resting on the ground; wings medium length; the second quill longest.

Platalea leucorodia.—THE WHITE SPOONBILL.

Plate LX. fig. 8.

White; breast with a patch of yellow; ophthalmic region pale yellow; occiput provided with a crest of long lemon-yellow feathers. Two and a half feet long; bill eight and a half inches. Inhabits Europe.

Platalea agaya.—THE ROSEATE SPOONBILL.

Plate LXI. fig. 6.

Head, face, and throat, yellow; neck white; wings, abdomen, and crissum, roseate; a tuft of rosy feathers on the throat.

Genus 22.—TANTALUS.—Linnæus.

Generic Character.—Bill very long, straight, laterally compressed, destitute of a nasal furrow, base as thick as the head, sharp and curved at the tip; upper mandible arched, sides dilated, tip compressed, cylindrical, and slightly notched; under mandible equal with the superior one, inflated at the base, and slightly bent towards the tip; both mandibles greatly inflected, and sharp; face destitute of feathers; nostrils longitudinal and oblong, cleft in the horny substance; legs very long; tarsus double the length of the middle toe; three anterior toes, united by a broad scalloped membrane; hallux long, and resting on the ground; wings long, first and second quill the longest.

Tantalus leucocephalus.—THE WHITE-HEADED TANTALUS.

Plate LXVIII. fig. 5.

Head, neck, back, scapulars, and middle wing-coverts, white; secondaries rose-coloured, the lower ones tipped with white, rest of the wings dark iridescent blue-gray, reflecting purple and green; smaller wing-coverts tipped with white; breast with a transverse belt of waved black bars; face, throat, and bill, saffron-yellow; irides orange; legs yellow and violet. Four feet long. Inhabits Ceylon.

Genus 23.—IBIS.—Lacepede.

Generic Character.—Bill long, slender, arcuated, broad at the base, tip obtuse, depressed, and rounded; upper mandible furrowed its whole length; nostrils oblong, straight, near the base of the bill, perforated in the membrane, which covers the furrow; face, and frequently part of the head and neck, destitute of feathers; lower half of the tibia naked; tarsus about the same length as the middle toe; three anterior toes, united the length of the first joint; hallux long, resting on the ground; wings of medium length, first quill longest.

Ibis religiosa.—THE SACRED. OR EGYPTIAN IBIS.

Plate LXII. fig. 2.

White; head, neck, and legs, gray; tail iridescent-black; irides ferruginous. Fifteen inches long. Inhabits Egypt.

Genus 24.—NUMENIUS.—Brisson.

Generic Character.—Bill long, slender, arcuated, compressed, hard, and slightly obtuse at the point; upper mandible projecting a little beyond the under one, rounded at the tip, with a groove three-fourths of its length; nostrils lateral, linear, and situated in the furrow; legs slender, long; tibia half naked; three anterior toes, united the length of the first joint by a membrane; the hallux short, articulated a little way from the bottom of the tarsus, nail touching the ground; wings long, the first quill longer than the others.

Numenius arquata.—THE CURLEW.

Plate LXII. fig. 3.

Reddish ash-coloured above, with longitudinal brown spots on the neck and breast; abdomen white, with oblong spots; tail whitish ash-colour, with transverse brown bars; upper mandible brownish-black, under one flesh-coloured; irides brown; legs deep ash. Two feet long. Inhabits Europe.

Genus 25.—TRINGA.—Brisson.

Generic Character.—Bill of medium size, soft and flexible, long in some species, and slightly arcuated, tip straight or curved, compressed at the base, depressed, dilated, and obtuse at the tip; both mandibles grooved nearly to their extremities; nostrils lateral, placed in the membrane which clothes the nasal furrow; legs long, slender; lower half of tibia naked; three entirely divided anterior toes, in some species, however, the outer toe is connected by a membrane; hallux articulated on the tarsus a little way higher than the toes; wings of medium length, the first quill longest.

SECTION I.—With the anterior toes entirely divided.

Tringa cinerea.—THE RED KNOT.

Plate LXVIII. fig. 6.

Head and upper parts yellow ash-colour, with arrow-shaped brown bars, and clouded with rust-colour; face, throat, breast, and abdomen, rich chestnut; venter, crissum, and tail-coverts, white; quills and bill black; legs dusky-brown. Nine and a half inches long. Inhabits Europe and America.

SECTION II.—Intermediate and exterior toe united the length of the first joint.

Tringa pugnax.—THE RUFF.

Plate LXIII. fig. 1.

Wing-coverts brownish-ash; upper parts and breast transversely barred with blackish-brown; abdomen and crissum white; tail brown, the four middle feathers barred with black; sinciput with a pendulous crest; neck provided with a ruff; bill reddish-yellow, tipped with black; irides hazel. Eleven and a half inches long. Inhabits Europe. Exceedingly variable in colour and markings.

Genus 26.—TOTANUS.—Bechstein.

Generic Character.—Bill of medium length, straight, a little recurved in some species, point hard and acuminate; both mandibles furrowed at the base, the tip of the upper one slightly bent over the under one; nostrils linear, longitudinal, situated in the furrow; legs long, slender; tibia partly naked; feet with three anterior toes, the exterior united to the intermediate one, extending sometimes to the second joint; wings of medium length, first quill the longest.

SECTION I.—Bill straight.

Totanus hypoleucos.—THE SANDPIPER.

Plate LXII. fig. 4.

Upper parts olive-brown, somewhat iridescent; the shafts with a black stripe; wings and back with zigzag lines; under parts white. Seven inches long. Inhabits Europe.

SECTION II.—Bill a little recurved, straight at the point.

Totanus glottis.—THE GREENSHANK.

Plate LXII. fig. 5.

Gray-brown, with dusky spots; legs sea-green. Twelve and a half inches long. Inhabits Europe.

Genus 27.—LIMOSA.—Brisson.

Generic Character.—Bill very long, recurved, soft, flexible,

depressed and flattened towards the tip ; both mandibles longitudinally channelled ; point dilated and obtuse ; nostrils linear, longitudinal, situated in the groove, and covered by a membrane ; legs long ; tibia partly naked ; feet with three anterior toes, the exterior united to the middle toe by a membrane as far as the first joint ; hallux articulated on the tarsus ; wings long ; the first quill longer than the others.

Limosa rufa.—THE RED GADWIT.

Plate LXII. fig. 6.

Rusty-gray on the head and shoulders ; breast and hypochondria ferruginous, barred and marbled with white ; abdomen white, slightly spotted with brown ; crissum white ; exterior webs and tips of quills and legs, dusky ; bill dull yellow, dusky at tip. Eighteen inches long. Inhabits Europe.

Genus 28.—SCOLOPAX.—*Linnaeus*.

Generic Character.—Bill long, straight, compressed, tapering, soft, with the tips turgid ; both mandibles with a groove extending half their length, the tip of the upper mandible hooked, projecting over the lower one ; nostrils basal, linear, covered by a membrane ; legs slender ; tibia partly naked in some species ; feet with three anterior toes, the exterior one united to the intermediate toe, the length of the first joint, by a short membrane ; hallux articulated on the tarsus, wanting in some species ; wings of medium length, the first quill longest.

SECTION I.—Tibia wholly feathered.

Scolopax rusticola.—THE WOODCOCK.

Plate LXII. fig. 7.

Upper parts marbled, barred and streaked with white, gray, red, ash, and brown ; under parts gray ash, barred with deep ash and brown ; crown of the head cinereous ; nape black ; legs blue-gray. Thirteen inches long. Inhabits Europe.

SECTION II.—Lower part of tibia naked.

Scolopax gallinago.—THE COMMON SNIPE.

Plate LXII. fig. 8.

Cream-yellow, mottled, barred, streaked, and spotted with black and brown; abdomen white; sides barred; quills dusky, edged with white; legs greenish. Ten inches long. Inhabits Europe.

SECTION III.—Intermediate and exterior toe united by a membrane. Exemplified in the red-breasted snipe.

Genus 29.—RYNCHÆA.—Cuvier.

Generic Character.—Bill longer than the head, gibbous towards the point, and greatly compressed, inflected towards the tip; upper mandible with a groove, lower mandible channelled near the point; nasal furrow extending to the middle of the bill; nostrils linear; tarsus longer than the intermediate toe; three anterior toes entirely divided; hallux articulated on the tarsus; wings short, concave; second and third feathers longest.

Rynchæa Capensis.—THE CAPE SNIPE.

Plate LXVIII. fig. 8.

Reddish-brown above, variegated with different streaks of ashy-colour, black, and brown; breast, abdomen, and crissum, white; bill and legs dusky. Ten inches long. Inhabits the Cape.

Genus 30.—EURYPYGA.—Illiger.

Generic Character.—Bill long, hard, straight, compressed, and tumid at the tip; nasal furrow deep; sides of the lower mandible sulcated; tip of upper mandible with a small notch; nostrils basal, linear, oblong; legs long, tibia partly naked; tarsus longer than the intermediate toe; feet with three anterior toes, the external one united by a membrane the length of first joint, the internal free; hallux articulated on the tarsus, long, and the point resting on the ground; wings of medium length; first and fourth quills longest.

Eurypyga Helias.—THE VARIEGATED HELIAS.

Plate LXVIII. fig. 9.

Head gray; neck ferruginous, throat white; back, breast, tail, and scapulars gray, transversely clouded and barred with

black and gray ; wings variegated with ochre-yellow, gray, green, and scarlet ; bill and legs dusky. Fifteen inches long. Inhabits Guiana.

Genus 31.—*RALLUS.*—*Linnaeus.*

Generic Character.—Bill somewhat longer than the head, slender, and slightly arcuated, or straight in some species, compressed at the base, cylindrical at the tip ; upper mandible grooved ; nostrils situated a little remote from the base, placed in the furrow, and half closed by a membrane ; legs long, strong, tibia partly naked ; three anterior toes long, and completely divided ; hallux short, articulated on the tarsus, and the point touching the ground ; wings concave, rounded ; first quill same length as the fifth ; the third and fourth the longest of the whole.

Rallus aquaticus.—*THE WATER RAIL.*

Plate LX. fig. 1.

Upper parts reddish-brown ; throat whitish ; cheeks, breast, and abdomen, lead-coloured ; bill red. Nine and a half inches long. Inhabits Europe.

Genus 32.—*GALLINULA.*—*Brisson.*

Generic Character.—Bill shorter than the head, compressed, conical, deeper than broad at the base ; ridge resting on the forehead, and dilated into a naked plate in some species ; tips of mandibles compressed, and of equal length, the upper one a little curved, the lower one forming an angle ; nostrils remote from the base, lateral, longitudinal, half closed by a membrane, which clothes the nasal furrow ; legs long ; tibia partly naked ; feet with three long lateral toes, completely divided, and provided with a narrow edging ; hallux articulated on the tarsus, its point touching the ground.

SECTION I.—Ridge of the bill extending on the forehead, but not dilated.

Gallinula crex.—*THE LAND RAIL.*

Plate LXII. fig. 9.

Dark brown above, edged with pale ferruginous ; wing-coverts

deep chestnut ; throat and breast pale ash ; abdomen and crissum yellowish-white ; irides hazel ; bill light brown ; legs flesh-coloured. Nine inches and a half long. Inhabits Europe.

SECTION II.—Ridge of upper mandible dilated into a plate on the forehead.

Gallinula Chloropus.—THE WATER HEN.

Plate LXIII. fig. 2.

Upper parts iridescent olive-green, changing to brown ; under parts dusky ; feathers of the crissum tipped with white, horny-shield red ; bill green and yellow at the tip ; a white spot under each eye ; irides red ; naked part of tibia red ; tarsus and feet clouded with yellow and green. Fourteen inches long. Inhabits Europe.

Genus 33.—PARRA.—*Linnæus*.

Generic Character.—Bill as long as the head ; straight, slender, and considerably compressed, somewhat arched from the middle, and tapering to a point in both mandibles ; base depressed, and elevated to a crest on the front ; upper mandible projecting beyond the under one at the tip ; nostrils oval, lateral, situated near the centre of the bill ; legs very long ; tibia naked three quarters of its length ; tarsus thickening as it descends ; feet with three very long anterior toes, entirely free, furnished with long straight claws ; hallux parallel with the toes, rather long, and furnished with an extremely long, straight, subulate claw, slightly retrousse at the tip ; wings short, armed with a short spine at the axilla ; the second and third quills the longest.

Parra Jacana.—THE CHESTNUT JACANA.

Plate LXI. fig. 1.

Back, throat, upper wing-coverts, and scapulars, rich chestnut-coloured ; under parts black, iridescent, changing to purple ; bill yellow, carunculated at the base. Ten inches long. Inhabits South America.

Genus 34.—PORPHYRIO.—*Brisson*.

Generic Character.—Bill of medium size, robust, hard, conical, nearly as deep as long, somewhat shorter than the head ;

upper mandible depressed and dilated towards the base ; nostrils lateral, nearly round and pervious, placed near the centre of the bill ; legs long, strong ; tibia half naked ; three anterior completely divided toes, which in some species are very long, and marginated by a narrow membrane ; hallux long, articulated on the tarsus ; all the toes have long bent claws ; wings concave, rounded ; the second and third quill the longest.

Porphyrio lavoua.—THE MARTINICO PORPHYRIO.

Plate LX, fig. 9.

Head, neck, breast, and abdomen, deep iridescent Antwerp-blue, with purple reflections ; back, scapulars, rump, and tail, deep sea-green, clouded with black ; lesser middle wing-coverts and quills azure-blue ; crissum and tibia black ; under tail-coverts white ; irides, frontal plate, and three quarters of the bill, scarlet, tipped with yellow ; legs ash-yellow. Fourteen inches long. Inhabits Martinique and the United States of America.

ORDER XIV.—PINNATIPEDES.

Bill of medium size, straight ; upper mandible slightly bent at the point ; upper mandible slightly curved at the tip ; legs of medium length, straight ; tarsi slender, or compressed ; feet with three anterior toes, having rudimentary webs along their sides ; hallux articulated anteriorly on the tarsus.

Genus I.—FULICA.—*Linnæus*.

Generic Character.—Bill somewhat shorter than the head, strong, conical, straight, compressed, deeper than broad at the base ; the ridge projecting in front of forehead, dilated into a plate ; the upper mandible slightly curved, and widened at the base, the lower one forming an angle ; nostrils lateral, longitudinally cleft, and situated in the middle of the bill, half closed by an inflated membrane ; legs long ; tibia, partly naked ; three anterior toes very long, connected at the base, and edged by a scalloped membrane ; wings concave, rounded ; the first and fifth quill longest.

Fulica atra.—THE COMMON COOT.

Plate XLIII. fig. 3.

Upper parts slate-gray ; under parts bluish ash-colour ; frontal plate broad and white ; head and neck deep glossy black ; bill white, with a rosy tinge. Sixteen inches long. Inhabits Europe.

Genus 2.—*PODOA*.—*Illiger*.

Generic Character.—Bill as long as the head, straight, cylindrical, pointed ; ridge distinct, reaching three quarters the length of the bill ; upper mandible with a small notch at its tip ; nostrils lateral, oblong, situated near the centre of the bill ; legs short, strong, placed far back ; tarsus rounded ; three anterior toes, with a scalloped membrane at their edges ; hallux short, nails long, bent ; wings of medium length, second and third quills longest.

Podaa Senegalensis.—THE SENEGAL *PODOA*.

Plate LX. fig. 6.

Crown, nape, back of the neck, back, wings, and tail, brownish ash-coloured, spotted with white ; under parts white, transversely barred with dark brown ; throat ash-brown, spotted with white ; tail long ; bill and legs orange ; irides yellow. Twenty inches long. Inhabits Senegal.

Genus 3.—*PHALAROPUS*.—*Brisson*.

Generic Character.—Bill long, slender, weak, slightly curved, depressed at the base ; both mandibles channelled at the point, the upper obtuse, bent down at its tip on the lower one ; point of the under mandible subulate ; nostrils basal, linear, and placed in the groove ; legs of medium length ; three anterior toes connected by scalloped and serrated membranes ; hallux small, weak, and articulated on the tarsus considerably above the toes, the nail touching the ground ; wings long, first and second quills longest.

SECTION I.—Bill slender, depressed at the base, and subulate at the point.

Phalaropus hyperboreus.—THE RED PHALAROPE.

Plate LXVIII. fig. 10.

Crown of the head and back gray; wings brown ash-colour; scapulars ferruginous, tipped with gray; a black belt extends from ophthalmic region along the side of the neck, with a ferruginous patch at its base; breast cream-yellow; chin, throat, abdomen, and crissum, white; irides reddish-brown; bill and legs steel-gray. Eight and a half inches long. Inhabits the United States.

SECTION II.—Bill depressed through its whole extent, and compressed at the tip.

Phalaropus platyrhynchus.—THE GRAY PHALAROPE.

Plate LXIII. fig. 4.

Ash-coloured above, with a black fillet on the nape, and a transverse white band on the wings; middle of the back brown; upper mandible horn-colour, lower one orange at the base; a black patch under the eyes; legs black. Eight inches long. Inhabits Europe.

Genus 4.—PODICEPS.—*Latham*.

Generic Character.—Bill of medium size, the length of the head, hard, compressed, conical, and pointed; tip of upper mandible with a slight slope; nostrils oblong, ovate, lateral, concave, situated in the middle of the bill, open in front, closed behind by a membrane, and pervious; legs placed very far back; tibia partly concealed in the venter; tarsus greatly compressed; anterior toes much depressed, flattened at the base, united by a membrane; the hallux short, placed high on the tarsus; toes provided with flat, oblique, depressed, nails; wings of medium length, first, second, and third quills the longest; destitute of a tail.

Podiceps cristatus.—THE CRESTED GREBE.

Plate LXIII. fig. 5.

Back and wings mouse-colour; under parts silvery-white; scapular furnished with a double horizontal black tuft; sides of the head and ruff reddish-chestnut, margined with black; bill

red at the base, dusky at the tip; legs and feet black. Twenty-one inches long. Inhabits Europe.

ORDER XV.—PALMIPEDES.

Bills much varied in form; legs short, generally placed far back; anterior toes wholly or partially connected by webs, and in some of the families the whole four are united by one membrane; the hallux articulated to the tarsus on the interior side; some genera are devoid of a hallux.

Genus 1.—CEREOPSIS.—*Latham.*

Generic Character.—Bill very short, robust, its depth at the base being nearly equal to its length, covered by a cere, which extends over two-thirds of the upper mandible, which is arcuated, and bent over the under one, and somewhat truncated; nostrils very large, open, placed in the middle of the bill; the cere extending upwards, over the forehead, nearly to the crown; tibia very short; tarsus longer than the middle toe; three anterior toes palmated by deeply serrated membranes; hallux short, placed high on the tarsus; claws short, strong, slightly bent; wings furnished with an obtuse spur.

Cereopsis Novæ Hollandiæ.—THE NEW HOLLAND CEREOPSIS.

Plate LX. fig. 7.

Ash-gray; scapulars with wedge-shaped black spots; tail and quills black; cere yellow; irides red; venter blue; bill and feet gray; legs orange. Two and a half feet long. Inhabits New Holland.

Genus 2.—CHIONIS.—*Forster.*

Generic Character.—Bill strong, straight, hard; convex, compressed, sloping towards the point; base of the upper mandible sharp at tip and more than half covered by a moveable horny sheath, furrowed longitudinally; nostrils small, situated near the margin and partly covered by the sheath; cheeks naked, covered by a warty skin; legs short; tarsus not so long as the

middle toe; three anterior toes having a rudimentary membrane, the exterior and middle one joined the length of the first joint; hallux long, placed high, the nail only touching the ground; wings of medium length, the first quill longest.

Chionis Forsteri.—SHEATH-BILL.

Plate LX. fig. 2.

Snow-white; bill, cheeks, and ophthalmic region, yellow; legs flesh-coloured; nails black. Eighteen inches long. Inhabits New Zealand.

Genus 3.—RHYNCHOPS.—*Linnæus*.

Generic Character.—Bill long, flattened on the sides, and truncated at the apex in the form of a blade; the edges of the upper mandible approaching, and hollowed in the form of a gutter; under mandible much longer than the upper one; nostrils lateral, marginal, and remote from the base, and situated on the lower edge of the upper mandible; legs short; tibia partly naked; anterior toes short, united to their points by a membrane; hallux very short, articulated to the tarsus; claws short and curved; wings long, the first quill longest; tail short, furcated, and much shorter than the wings.

Rhynchops flavirostris.—YELLOW-BILLED CUT-WATER.

Plate LX. fig. 3.

Head, back, and wings, dusky-brown; a longitudinal white stripe along the wings; other parts of the plumage white; bill and legs yellow. Eighteen inches long. Inhabits Senegal.

Genus 4.—STERNA.—*Linnæus*.

Generic Character.—Bill as long as the head, longer in some species, nearly straight, strong, and tapering; mandibles with sharp edges, equal in length, the upper one a little inclined towards the point; nostrils longitudinal, pervious, situated in the middle of the bill; legs short; tibia partly naked; tarsus short, three anterior toes connected by a membrane; hallux short, placed high on the tarsus; tail forked; wings long and pointed, first quill the longest.

Procellaria pelagica.—THE STORMY PETREL.

Plate LXIV. fig. 2.

Head, back, wings, and tail, black ; under parts dingy black ; rump with a transverse white band ; scapulars and secondaries tipped with white ; irides brown ; bill and legs black. Five and a half inches long. Inhabits Europe and America.

Genus 8.—PACHYPTILA.—Illiger.

Generic Character.—Bill thick, robust, greatly depressed, very broad ; upper mandible inflated on the sides ; interior margins furnished with cartilaginous plates ; ridge distinctly formed, compressed, and hooked at its termination ; nostrils basal, having two orifices, situated in a short tube ; three anterior toes, adhering by deeply divided membranes ; hallux represented by a short claw.

Pachyptila Vittata.—FORSTER'S PACHYPTILA.

Ash-gray above, white in the under parts ; quills, tail-feathers at the tip, and band on the wings when expanded, brownish-black. Twelve inches long. Inhabits the Southern Hemisphere.

Genus 9.—HALADROMA.—Illiger.

Generic Character.—Bill short, straight, compressed, sharp at the edges, and furrowed longitudinally, hooked at the tip ; lower mandible furnished with a small pouch, capable of extension ; nostrils distinct, their base concealed under a tube ; legs short ; with three anterior toes only, which are palmated ; wings short.

Haladroma Urinatrix.—THE DIVING HALADROMA.

Blackish-brown above ; chin black ; and white on the under parts. Eight and a quarter inches long. Inhabits New Zealand.

Genus 10.—DIOMEDEA.—Linnæus.

Generic Character.—Bill long, straight, robust, thick, sutured, laterally compressed, abruptly curved at its point ; upper mandible channelled on the side, and much bent at the point ; lower mandible truncated ; nostrils situated in the groove, tubular, lateral, remote from the base, covered behind by a membrane,

and open in front ; legs short, tibia half naked ; feet with three anterior toes only, long and webbed to their extremities, lateral ones margined ; nails short, blunt ; wings long, narrow ; quills short, and the secondaries long.

Diomedea exulans.—THE WANDERING ALBATROSS.

Plate LXIV. fig. 3.

Back, rump, and scapulars, gray, the latter margined with white ; rest of the wings brownish-black ; second quill yellow on the edge ; head and under parts white ; irides and bill yellow ; legs and toes orange, webs yellow fawn-colour. Four feet long. Inhabits the coasts of Africa and America.

Genus 11.—ANSER.—Ray.

Generic Character.—Bill as short, or shorter than the head ; deeper than broad at the base, and narrowed towards its extremity ; nostrils large, elliptical, longitudinal, placed near the middle of the bill ; neck longer than in the *Anas*, and shorter than in the *Cygnus* ; legs longer than the former, and placed farther forwards, near the centre of gravity ; three anterior toes entirely connected by a membrane, hallux articulated on the tarsus, without any connecting membrane ; wings long ; first and second quill the longest.

Anser leucopsis.—THE BERNACLE GOOSE.

Plate LXIV. fig. 6.

Upper parts barred with bluish-gray, black, and white ; crown, back of the neck, shoulders, throat, breast, and tail, black ; face, cheeks, and chin, under parts, white ; tibia marked with dusky lines ; legs and feet dusky, very short and thick. Twenty-six inches long. Inhabits the Arctic regions.

Anser ruficollis.—THE RED-BREASTED GOOSE.

Plate LXIV. fig. 5.

Front, crown, nape, and back parts of the neck, black ; and a black patch under the eyes ; a white space between the eye and bill ; two stripes of white, extending from the back of the eyes to the bottom of the neck ; neck, and upper part of the back, deep rusty-red ; back and wings dusky ; lower part of breast and

Procellaria pelagica.—THE STORMY PETREL.

Plate LXIV. fig. 2.

Head, back, wings, and tail, black ; under parts dingy black ; rump with a transverse white band ; scapulars and secondaries tipped with white ; irides brown ; bill and legs black. Five and a half inches long. Inhabits Europe and America.

Genus 8.—PACHYPTILA.—Illiger.

Generic Character.—Bill thick, robust, greatly depressed, very broad ; upper mandible inflated on the sides ; interior margins furnished with cartilaginous plates ; ridge distinctly formed, compressed, and hooked at its termination ; nostrils basal, having two orifices, situated in a short tube ; three anterior toes, adhering by deeply divided membranes ; hallux represented by a short claw.

Pachyptila Vittata.—FORSTER'S PACHYPTILA.

Ash-gray above, white in the under parts ; quills, tail-feathers at the tip, and band on the wings when expanded, brownish-black. Twelve inches long. Inhabits the Southern Hemisphere.

Genus 9.—HALADROMA.—Illiger.

Generic Character.—Bill short, straight, compressed, sharp at the edges, and furrowed longitudinally, hooked at the tip ; lower mandible furnished with a small pouch, capable of extension ; nostrils distinct, their base concealed under a tube ; legs short ; with three anterior toes only, which are palmated ; wings short.

Haladroma Urinatrix.—THE DIVING HALADROMA.

Blackish-brown above ; chin black ; and white on the under parts. Eight and a quarter inches long. Inhabits New Zealand.

Genus 10.—DIOMEDEA.—Linnaeus.

Generic Character.—Bill long, straight, robust, thick, sutured, laterally compressed, abruptly curved at its point ; upper mandible channelled on the side, and much bent at the point ; lower mandible truncated ; nostrils situated in the groove, tubular, lateral, remote from the base, covered behind by a membrane,

and open in front ; legs short, tibia half naked ; feet with three anterior toes only, long and webbed to their extremities, lateral ones margined ; nails short, blunt ; wings long, narrow ; quills short, and the secondaries long.

Diomedea exulans.—THE WANDERING ALBATROSS.

Plate LXIV. fig. 3.

Back, rump, and scapulars, gray, the latter margined with white ; rest of the wings brownish-black ; second quill yellow on the edge ; head and under parts white ; irides and bill yellow ; legs and toes orange, webs yellow fawn-colour. Four feet long. Inhabits the coasts of Africa and America.

Genus 11.—ANSER.—Ray.

Generic Character.—Bill as short, or shorter than the head ; deeper than broad at the base, and narrowed towards its extremity ; nostrils large, elliptical, longitudinal, placed near the middle of the bill ; neck longer than in the *Anas*, and shorter than in the *Cygnus* ; legs longer than the former, and placed farther forwards, near the centre of gravity ; three anterior toes entirely connected by a membrane, hallux articulated on the tarsus, without any connecting membrane ; wings long ; first and second quill the longest.

Anser leucopsis.—THE BERNACLE GOOSE.

Plate LXIV. fig. 6.

Upper parts barred with bluish-gray, black, and white ; crown, back of the neck, shoulders, throat, breast, and tail, black ; face, cheeks, and chin, under parts, white ; tibia marked with dusky lines ; legs and feet dusky, very short and thick. Twenty-six inches long. Inhabits the Arctic regions.

Anser ruficollis.—THE RED-BREASTED GOOSE.

Plate LXIV. fig. 5.

Front, crown, nape, and back parts of the neck, black ; and a black patch under the eyes ; a white space between the eye and bill ; two stripes of white, extending from the back of the eyes to the bottom of the neck ; neck, and upper part of the back, deep rusty-red ; back and wings dusky ; lower part of breast and

abdomen black ; venter and crissum white ; bill brown ; legs dusky. Twenty-one inches long. Inhabits the Arctic regions.

Anser Cyonoides.—THE CHINESE GOOSE.

Plate LXIV. fig. 4.

Back and upper parts brownish-gray, edged with a lighter colour ; throat and breast yellow-brown ; a dark brown broad stripe, extending from the nape to the bottom of the neck ; bill orange at the base, with a large knob at the base of the upper mandible ; a white fillet extends from the base of the bill on each side in front of the eyes ; irides reddish-brown ; abdomen and crissum white ; legs orange. Three feet long. Inhabits China.

Genus 12.—CYGNUS.—Ray.

Generic Character.—Bill equal in breadth throughout, very deep at the base, its depth being greater than its breadth ; generally furnished with a callous knob at the base ; nostrils oval, placed near the middle of the bill ; neck very long ; cheeks naked ; legs placed far behind the centre of gravity ; feet with three lateral toes, entirely connected by a web ; hallux short and free, nails small ; wings long ; the second and third quills the longest.

Cygnus atratus.—THE BLACK SWAN.

Plate LXIV. fig. 7.

Black ; part of the primary and secondary quills white ; bill bright scarlet, surmounted by a slight protuberance ; legs and feet ash-coloured. Four feet two inches long. Inhabits Van Diemen's Land.

Cygnus olor.—THE TAME SWAN.

Plate LXIV. fig. 8.

Plumage white ; bill orange red ; nostrils, edges of the bill, naked space near the eyes, and protuberance at the base of the bill, black ; irides brown ; legs dusky, with a reddish tinge. Five feet long. Inhabits the temperate parts of Europe.

Genus 13.—ANAS.—Linnaeus.

Generic Character.—Bill of medium size, broader at the base

than deep, straight, depressed, and nearly of equal breadth throughout; upper mandible hooked and with a flat nail at the tip; nostrils placed near the base, towards the upper surface of the bill; cheeks covered with feathers; legs short, placed behind the centre of gravity; wings of medium length, first and second quills the longest; feet with three anterior toes, entirely webbed to their points; hallux free, short, connected in some species by a rudimentary web.

SECTION I.—Hallux without a membrane.

Anas tadorna.—THE SHELDRAKE.

Plate LXV. fig. 1.

Head and neck iridescent-black, changing to green; jugulum white; breast and shoulders with a band of orange-bay; back, wing-coverts, rump, upper tail-coverts, and crissum, white, a dusky rufous longitudinal stripe runs along the middle of the breast, to the crissum; part of the scapulars, bastard wing, and some of the quills are black; three next quills of an orange-red; tail white, tipped with black; bill and fleshy protuberance red; nails and nostrils black; legs flesh-coloured. Two feet long. Inhabits Europe.

Anas Penelope.—THE WIDGEON.

Plate LXV. fig. 4.

Upper parts, neck, and breast, bright reddish-chestnut, with black undulations and spots; a band of arrow-shaped ash-brown spots separate the neck and breast; abdomen white; wings dusky; greater coverts edged with white; secondaries deep black; crissum black; front and crown cream-yellow; bill lead-coloured, tipped with black; legs and toes lead-coloured. Eighteen inches long. Inhabits Europe.

Anas clypeata.—THE SHOVELER.

Plate LXV. fig. 3.

Back brown; abdomen and sides chestnut-bay; head and upper part of the neck iridescent-black, with green reflections; lower part of the neck, breast, and scapulars, white; wing-coverts sky-blue, terminated with white tips which form an oblique stripe across the wings; bill black, much spread out at

the point; inner sides of both mandibles with pectoral margins; irides bright yellow; legs and feet red. Eighteen inches long. Inhabits Europe.

SECTION II.—Hind toe furnished with a loose membrane.

Anas mollissima.—THE EIDER DUCK.

Plate LXV. fig. 2.

Cheeks, chin, upper part of the neck, back, and lesser wing-coverts, white; secondaries and greater wings-coverts brown; front of the neck and breast buff colour; abdomen, rump, and tail-coverts, brown-black; tail-feathers gray-brown; upper part of the head velvet-black, divided behind by a white band pointing downwards; auricles green and shining; bill yellow horn colour. Twenty-two inches long. Inhabits Europe.

Anas clangula.—THE GOLDEN-EYE.

Plate LXV. fig. 5.

Bill bluish-black; head slightly crested, which with the upper part of the neck, is iridescent-black, reflecting dark green and violet; a white spot under the eye; back, first fourteen quills, with all the outside margin of the wing, black; middle of the wing white; tail dark brown; legs reddish-ochre colour. Seventeen inches long. Inhabits the Arctic regions.

Genus 14.—MERGUS.—*Linnaeus*.

Generic Character.—Bill of medium size, or long in some species, slender, shape of an elongated cone, and nearly cylindrical, broad at the base; point of upper mandible considerably hooked, and provided with a flat nail; edges of both mandibles furnished with a row of reflected serri; nostrils lateral, open, situated near the middle of the bill; legs short, strong, placed far back; feet with three anterior toes webbed to their points; hallux thick, articulated high on the tarsus, and not resting on the ground; wings of medium length, first quill the longest of the whole.

Mergus merganser.—THE GOOSANDER.

Plate LXV. fig. 6.

Head crested, which with the upper part of the neck, back,

and upper scapulars, are iridescent-black, reflecting bright sea-green; upper wing-coverts, black; middle of the back and rump ash-colour; from the thighs to the sides of the tail white, and ash-coloured waved and freckled; the rest of the plumage pure white; mandibles black on the under and upper parts, crimson on the sides, and sharply toothed on the edges; tail bluish-gray; feet bright scarlet. Two feet long. Inhabits Europe.

Genus 15.—PELECANUS.—Linnaeus.

Generic Character.—Bill very long, straight, broad, greatly depressed; upper mandible flattened above, terminated by a long hooked nail; lower mandible formed of two long, slender, flexible branches, united together only at the tip; intermediate space occupied by a widely dilatable membranous pouch, extending some way down the throat; upper mandible forms a slight projection, bounded on either side by a narrow groove, in which the nostrils are situated, and so small as to be hardly perceptible; eyes surrounded by a naked space; neck rather long; legs short, strong; tibia partly naked in some species; feet with three anterior toes, and the hallux long, placed on the side of the tarsus, on a level with the toes, the whole connected by a web and provided with small hooked nails.

Pelecanus onocrotalus.—THE PELICAN.

Plate LXV. fig. 7.

Plumage white; quills black; bill, pouch, naked part of throat, and legs, livid gray; claws black; irides deep brown.

Genus 16.—CARBO.—Meyer.

Generic Character.—Bill of medium length, long in some species, straight, robust, compressed, and rounded at the top; upper mandible slightly retrousse, and grooved, greatly hooked at the point; lower mandible compressed and sub-truncated; base of the bill invested by a membrane, extending a little way down the throat, which with the face is naked; nostrils basal, linear, oblique, and involved in the membrane; legs strong, short; three anterior toes and hallux, connected by the membrane, and webbed to their points; middle claw serrated; wings of medium length, the second and third quills longest.

Carbo cormoranus.—THE CORMORANT.

Plate LXV. fig. 8.

Shoulders, scapulars, and wing-coverts, brown, with a bronzed green metallic lustre, and changing to bluish-black; cheeks and throat mixed with brown and white; crown of the head and neck black; the feathers of the nape long, and elevated into a kind of crest; abdomen white; tail dusky brown; bill dark horn-colour; irides green. Three feet long. Inhabits Europe.

Carbo graculus.—THE SHAG.

Plate LXVII. fig. 2.

Back and wings ash-coloured, bordered with black; head, throat, and neck, iridescent-black, with green reflections. Two feet long. Inhabits Europe.

Genus 17.—TACHYPETES.—*Vieillot*.

Generic Character.—Bill longer than the head, strong, entire, with a suture close by the ridge; both mandibles bent downwards, greatly hooked, lower mandible compressed, upper mandible with a notch near its tip; nostrils basal, linear, elongated, situated in the groove; legs strong and short; tarsus half covered by feathers, placed far back; feet with three short anterior toes, connected to the first joint by a membrane; hallux placed on the side, of medium length, and connected with the toes by a small membrane; wings very long, first and second quills the longest; tail long and forked.

Tachypetes aquilus.—THE FRIGATE BIRD.

Plate LV. fig. 8.

Brownish-purple, iridescent, reflecting green and golden bronze; tail brown; shafts white; irides, bill, and throat, orange; feet dusky. Three feet long. Inhabits the South Seas.

Genus 18.—SULA.—*Brisson*.

Generic Character.—Bill much longer than the head, strong, very broad at the base, and tapering to the point in the form of a cone, compressed towards the tip, which is obliquely curved; gape very wide, extending behind the eyes; under mandible slightly inflated near the point; the edges of both mandibles serrated; face and throat naked; nostrils basal, linear, situated

in the ridge and concealed by a membrane; legs short, strong, placed far behind; tarsus covered with feathers at top; three anterior toes, and hallux connected by a web, the latter long, articulated on the side of the tarsus; claw of the middle toe serrated; wings long, first and second quills longest.

Sula alba.—THE SOLAND GOOSE.

Plate LXVII. fig. 1.

General plumage white; quills and bastard wings black; head and occiput pale sulphur yellow; bill blue, ash-coloured at the base, white at the tip; naked membranes on the ophthalmic region, and throat blue; irides pale yellow; legs dusky. Two feet eight inches long. Inhabits Europe.

Genus 19.—PLOTUS.—*Linnaeus*.

Generic Character.—Bill long, quite straight, slender, fusiform, and sharp pointed; edges of upper mandible dilated at the base, compressed, and inflected on the other parts; under mandible inflated near the point, and slightly retrousse at the tip; edges of both mandibles finely serrated; face and throat naked; nostrils basal, linear, oblong, ovate, situated in the groove and concealed; legs short, strong, tarsus partly covered with feathers at the top; feet with three anterior toes, and the hallux articulated at the side of the tarsus, the whole connected by one web to their points; nails strong, short, and much hooked; wings long, the second and third quills longest; tail conical.

Plotus melanogaster.—THE BLACK-BELLIED DARTER.

Plate LV. fig. 5.

Dark umber-brown above; nape and sides of the neck with white oblique lines; lower part of the neck, chin, and upper wing-coverts, speckled and longitudinally streaked with white; throat, breast, abdomen, and crissum, black; quills and tail black; the latter with a band of white at its point; upper mandible blue, lower mandible dull yellow; feet yellow. Three feet three inches long. Inhabits the seas of South America.

Genus 20.—PHAETON.—*Linnaeus*.

Generic Character.—Bill longish, thick, strong, hard, sharp pointed at the edges, greatly compressed, with a slight curvature

from its base ; edges of both mandibles widened at their base, compressed, and serrated, from thence to the tip ; under mandible slightly curved, on its lower margin three-fourths its length, and acutely tapering to the point ; nostrils near the base, lateral, pervious, and partly concealed by a membrane ; legs very short, strong, placed far back ; three anterior toes, connected to their tips by a membrane ; the hallux small, short, placed behind, and free ; wings long, first and second quills longest ; tail short, but having two long filamentous central feathers, which are slightly forked.

Phaeton phenicurus.—THE RED-TAILED TROPIC BIRD.

Plate LV. fig. 4.

Plumage white, with a delicate rosy tinge ; three longest secondary quills clouded with black ; upper auricles and sinciput with a few crescent-shaped brown spots ; a black line over the eyes, and a patch of the same betwixt the bill and eye ; bill and middle tail feathers scarlet ; legs gray. Two feet ten inches long to the point of the tail. Inhabits the South Seas.

Genus 21.—COLYMBUS.—*Latham*.

Generic Character.—Bill as long as the head, strong, compressed, acutely pointed, and somewhat cylindrical ; upper mandible longer than the under one ; nostrils situated at the base of the bill, concave, and half-closed by a membrane ; legs placed far behind ; tarsus strong, compressed ; three anterior toes very long, united to their tips by a web ; hallux short, articulated interiorly, united by a rudimentary membrane ; wings of medium length ; the third quill the longest ; tail very short and rounded.

Colymbus glacialis.—THE GREAT NORTHERN DIVER.

Plate LXVII. fig. 3.

Head, throat, neck, back, and wings, deep iridescent black, with green and purple reflections ; throat with two white rings, longitudinally streaked with black lines ; back and wings speckled with oblong spots of white ; under parts white ; bill and legs black. Twenty-nine inches long. Inhabits the Arctic Seas.

Genus 22.—URIA.—*Drisson*.

Generic Character.—Bill of medium size, short in some species, straight, pointed, and compressed ; upper mandible slightly bent

towards the point, the lower one forming an angle, a little open ; nostrils basal, lateral, concave, oblong, ovate, longitudinal, half concealed by a broad membrane covered with feathers and pervious ; legs short, placed far back ; feet with three anterior toes only, webbed to their points ; wings short, narrow ; first and second quills longest.

Uria gyille.—THE BLACK GUILLEMOT.

Plate LXVI. fig. 9.

Plumage iridescent black, with green and purple reflections ; greater wing-coverts having a large patch of white ; bill black ; legs and feet scarlet ; nails black. Fourteen inches long. Inhabits the North Seas.

Genus 23.—MERGULUS.—*Vieillot*.

Generic Character.—Bill shorter than the head, a little arcuated, conico-convex, a little open between the mandibles ; upper mandible slightly bent towards the point ; lower mandible straight half way from its base, where it forms an acute angle, and suddenly tapers to a point ; base of both mandibles clothed with feathers ; nostrils round, partly covered by the feathers of the capistrum ; legs short, placed far behind ; feet with three anterior toes only, united to their points by a web ; claws long and sharp ; wings short ; the first and second quills longest ; tail short and pointed.

Mergulus alle.—THE LITTLE AUK.

Plate LXVII. fig. 4.

Upper parts black ; lesser coverts and scapulars tipped with white, forming a band of white across the wing ; the scapulars with longitudinal white streaks ; a white belt across the cheek, nearly meeting at the sinciput ; irides and toes orange ; webs brown ; bill and nails black.

Genus 24.—PHALERIS.—*Temminck*.

Generic Character.—Bill shorter than the head, depressed, somewhat dilated on the sides, quadrangular and slightly notched at the tip ; the lower mandible angulated on its lower side ; nostrils remote from the base, placed on the edge of the upper mandible, linear, and half concealed by a membrane ; legs short ; tarsus scaly ; feet with three long anterior toes only, united to their tips by a serrated membrane ; nails long and bent ; wings of medium length ; the first quill longest.

Phaleris cristatella.—THE TUFTED STARLING.

Plate LXVI. fig. 5.

Brownish ash-coloured; venter and crissum white; wings brownish; front surmounted by an upright crest of arched feathers; face and cheeks with long filamentous, silky feathers; bill scarlet; legs and feet dusky-yellow. Twelve inches long. Inhabits America and Asia.

Genus 25.—MORMON.—*Illiger*.

Generic Character.—Bill shorter than the head, much compressed, deeper than long; both mandibles arcuated, transversely furrowed, with a notch near the tip; ridge of the upper mandible elevated above the level of the coronal surface; nostrils lateral, linear, remote from the base, placed on the margin of the upper mandible; nearly concealed by a large membrane; legs short, placed very far behind; feet with three anterior toes only, webbed to their points, furnished with rather long and hooked nails; wings short; first and second quills longest.

Mormon fratercula.—THE PUFFIN.

Plate LXVII. fig. 6.

Front, crown of the head, upper parts, and a broad collar round the neck, deep shining black; quills very dark brown; under parts white; bill ash-coloured at the base, yellow in the centre, and orange-red at the point; cheeks and chin pale ash; ophthalmic region and legs orange. Twelve inches and a half long. Inhabits Europe.

Genus 26.—ALCA.—*Linnaeus*.

Generic Character.—Bill straight, broad, much compressed, and greatly bent towards the tip; basal half of both mandibles covered with feathers, grooved transversely towards the venter and point; upper mandible hooked; the under mandible slightly concave next the base, and forming an acute angle at a distance from the point, from whence it becomes abruptly pointed; nostrils linear, marginal, situated near the centre of the bill, nearly covered by a membrane, and hid by feathers; legs short, placed far behind; tarsus, while in a sitting posture, horizontal; feet with three anterior toes only, connected to their points by scalloped webs; nails short, slightly hooked and retrousse; wings very small; first quill longest.

Alca impennis.—THE GREAT AUK.

Plate LXXVII. fig. 5.

Bill, head, neck, throat, back, tail, wings, and feet, brownish-black ; a spot in front of the eyes, and all the under parts, white ; lesser wing-coverts tipped with white. Three feet long. Inhabits the North Seas.

Genus 27.—SPHENISCUS.—*Brisson*.

Generic Character.—Bill shorter than the head, straight, laterally compressed, very thick, strong, hooked at the point, and obliquely grooved ; edges of both mandibles inflected, the under one covered with feathers at its base, and sub-truncated at its tip ; nostrils small, linear, situated in the furrow, near the middle of the bill ; legs very short, thick, placed very far behind ; feet with three anterior toes, webbed to their tips ; hallux articulated on the inside of the tarsus, very short and thick ; nails long and slightly bent ; wings very short, fin-shaped, and destitute of plumes.

Spheniscus chrysocome.—THE CRESTED PENGUIN.

Plate LXXVI. fig. 10.

Crest consisting of black and yellow plumes ; head, back of the neck, wings, back, rump, and tail, deep blue-black ; under parts pure white ; irides, bill, and feet, orange. Two feet long. Inhabits Falkland Islands.

Genus 28.—APTENODYTES.—*Forster*.

Generic Character.—Bill longer than the head, slender, subulate ; upper mandible with an oblique furrow, which is wide at the base, enveloped in a smooth skin ; nostrils near the centre of the bill, placed high ; legs very short, situated far back ; feet with three long anterior toes, connected to their tips by a web ; hallux short, articulated at the inner joint of the tarsus, and directed forward ; nails nearly straight ; wings short, fin-shaped, having quill feathers only.

Aptenodytes Patagonica.—THE PATAGONIAN PENGUIN.

Plate LXVI. fig. 12.

Back dark blue-gray ; breast, belly, and crissum, white ; head, throat, and back of the neck, dark brown ; a waved black line extends from the back of the neck to the top of the wing ; bill

and legs black ; auricles with a golden yellow spot ; irides hazel. Four feet three inches long. Inhabits the South Sea Islands.

ORDER XVI.—INERTES.

Bill of varied forms ; body thick, covered with down, and distinctly webbed feathers ; legs placed far behind ; tarsus short ; feet with three anterior toes divided to the base ; hallux short, articulated exteriorly ; claws thick and sharp ; wings not fitted for flight.

Genus 1.—APTERYX.—Shaw.

Generic Character.—Bill very long, straight, slightly bent from the base, subulate ; inflected and gibbous at the tip, soft and furrowed throughout ; base covered by a hairy cere ; nostrils situated near the point of the bill, at the end of a furrow ; legs short ; wings rudimentary, and provided with a spur at their termination.

Apteryx Australis.—THE SOUTHERN APTERYX.

Plate LXVI. fig. 11.

Back of neck, shoulders, back, rump, and sides, dusky-brown ; the rest of the plumage cinereous-gray ; bill and legs yellowish. Two feet and a half long. Inhabits New Zealand.

Genus 2.—DIDUS.—Linnaeus.

Generic Character.—Bill long, very strong, broad, and compressed, much bent at the point, and transversely furrowed ; lower mandible straight, gibbous, and turned upwards towards the point ; nostrils situated in the middle of the bill, diagonal, and placed in a furrow ; tarsus short, very strong ; feet with three anterior toes, divided to their origin ; hallux short ; claws short, strong, and bent ; wings short, not formed for flight.

Didus ineptus.—THE DODO.

Plate LXVII. fig. 7.

Ash-coloured and soft ; abdomen paler ; head large ; wings and tail yellow-cinereous ; tail furnished with plumes. Three feet long. Inhabits the Mauritius. Supposed extinct.

CLASS THIRD.

R E P T I L E S.

VERTEBRATED animals with cold red blood, the skin either naked or protected by scales.

OF REPTILES.

The skin of this class is either naked or covered with scales. It is periodically renewed among many of the tribes. The secretions of the cuticle are insufficient to moisten it.

The temperature of reptiles usually corresponds with that of the medium where they are situated: they become torpid when the temperature sinks to the freezing point; and so essential is a warm temperature to these animals, that we find the greater number of the class destined to inhabit the hotter portions of the earth.

The bones of reptiles, with the exception of the larger kinds, seldom attain the same degree of hardness as in quadrupeds and birds. These vary exceedingly in their connection and number, in different tribes. Frogs and their congeners have no ribs; in serpents the ribs are detached, without a sternum; in tortoises they all adhere together; and in lizards they are like that of birds. Their limbs are fitted for performing progression in a variety of ways. Some have two, and others four, feet; either webbed for swimming, or cleft for walking and climbing. Many are inhabitants of the water, and others exist entirely upon land. Those which live in the former element are often formed some-

what like fishes, being destitute of feet, with their bodies compressed behind ; others are provided with fins, which are, however, devoid of cartilaginous or bony filaments for their support, as in fishes. Their teeth are more suited for retaining their food, than for the process of mastication. Some of the genera subsist on vegetable food, but the greater number feed on animal substance. Their meals are seldom, but they consume a large proportion at a time.

The circulation of reptiles is but imperfect, as only a portion of the blood is aerated that flows from the heart, and that part, instead of taking a direct course to the various organs, is again incorporated with the circulating fluid. The organs by which the blood is exposed to the air, are by means of lungs situated in the abdominal cavity. The lobes of these organs are unequal in size, having cells of much larger dimensions than in warm-blooded animals.

The motions of this class are principally confined to crawling and swimming. Some species leap, and others run with considerable rapidity : but the prevailing habits of the tribe are sluggishness, and obtuseness of sensation.

The brain of reptiles is small. The nerves are solid in their texture. They exhibit sensation after the brain has been removed, and in some instances, even after decapitation. The heart has been known to pulsate after its removal from the body for hours.

The senses of reptiles are five, but all imperfect. The scales or plates by which many are covered, render their feeling of touch obtuse ; and those which have a smooth skin are only enveloped in it like a bag ; as exemplified in frogs and their congeners. The eye, in serpents and other tribes, is immoveable, and covered by a corneous membrane ; while others appear blind. The *cochlea* is represented by a small bone under the tympanum. The nostrils are much contracted, so that their sense of smell must be imperfect ; and as they swallow their food without mastication, it indicates a want of delicacy in taste ; besides, their tongue is soft and flexible, only fitted for holding their food. None of the reptiles have fleshy lips ; some of the tortoises are provided with a horny bill like that of a bird.

Reptiles all produce their young by means of eggs ; these are

not, however, hatched by the parent, but deposited in situations favourable to their developement. In some genera the young are produced perfect, while in others they are of a widely different form, being shaped like, and having the habits of a fish, and, like insects, undergo a transformation, before arriving at perfection. A familiar example of this may be seen in tadpoles, which are the young of frogs.

The classification of Reptiles adopted by Cuvier, is that of Brongniart, who derived his orders from the varieties of construction in the chief organs, such as those of generation and respiration, taken in conjunction with the animal functions. They are divided into four orders, namely:—

- I. CHELONIANS, or Tortoises.—Body covered with a shield or plate.
- II. SAURIANS, or Lizards.—Body covered with scales.
- III. OPHIDIANS, or Serpents.—Destitute of feet.
- IV. BATRACHIANS, or Frogs—Body covered with a naked and loose skin.

ORDER I.—CHELONIA.

Heart having two auricles; body enveloped in two plates or shields, formed of the ribs or sternum; and with four feet.

DIVISION I.—Inhabits the land.

Genus 1.—TESTUDO.—*Brongniart*.

Generic Character.—Superior shell gibbous, sustained by a bony frame, and adhering through the greater portion of its sides to the under shell; feet with short toes, attached together to nearly the nails, which, together with the head, can be withdrawn within the shell; anterior feet with five nails, posterior feet with four nails, the whole of them conoid and thick.

Testudo geometrica.—GEOMETRICAL TORTOISE.

Plate LXIX. fig. 1.

Shell black, ovate; scutellæ ornamented with yellow radiæ,

diverging from a yellow disc, which is composed of thirteen or fourteen pieces; marginal divisions from 24 to 26. Twelve inches long. Inhabits Africa.

DIVISION II.—Fluviatile Tortoises.

Genus 2.—EMYS.—*Brongniart*.

Generic Character.—Upper shell gibbous, divided into large scutellæ; feet with distinctly defined toes, furnished with crooked nails; toes more or less palmated, five on the anterior feet, and four on the posterior feet.

Emys Europæa.—SPECKLED TORTOISE.

Plate LXIX. fig. 2.

Shell ovate, a little convex, smooth, black, ornamented with yellow radiated dots; disc composed of 13 scutellæ, and the margin of 25; under shell cream-yellow, brown at the joints; the skin of the neck lax and wrinkled. Fifteen inches long. Inhabits Europe.

Genus 3.—CISTUDA.—*Fleming*.

Generic Character.—Upper shell emarginate in front, having two notches behind; under shell with one or two moveable divisions; lips horny.

Cistudo Amboynensis.—AMBOYNA TORTOISE.

Shell convex above, umber-brown, with a straw-yellow margin; head with yellow spots; the breast-plate moveable both before and behind. Fifteen inches long. Inhabits Amboyna.

DIVISION III.—Marine Tortoises.

Genus 4.—CHELONURA.—*Fleming*.

Generic Character.—Extremities incapable of being withdrawn under the shield; back-plate carinated, with acute processes behind; tail about the length of the shield.

Chelonura serpentina.—SNAKE TORTOISE.

Oblong-ovate, considerably depressed, with a double carina; posterior margin rounded, and acutely serrated; tail the same

length as the body. Four feet long. Inhabits North America.

Genus 5.—CHELONIA.—*Brongniart.*

Feet produced, in the shape of scaly fins; toes elongated, and unequal, covered with scales, and united by a membrane, their exterior edges provided with small nails, and terminated by laminated scales.

Chelonia mydas.—THE GREEN TURTLE.

Plate LXIX. fig. 2.

Shell pale brown, with variegated undulations, heart-shaped, pointed at the extremity, with 13 dorsal scutellæ, and 25 marginal plates. Six feet long. Inhabits the West Indian Seas.

Genus 6.—CHELYS.—*Dumeril.*

Generic Character.—Lips fleshy, mouth cleft across, with a produced snout; toes webbed; hind feet with a protuberance occupying the place of webs, but destitute of a claw; limbs of the animal not contained within the shell.

Chelys fimbriata.—THE FRINGED TORTOISE.

Shell oval, moderately convex, pale umber-brown, rugose, with pyramidal protuberances; neck provided with fimbriated membranous appendages; snout cylindrical, and sub-truncated; disc consisting of 13 semicircular scutellæ, and having 25 nearly square marginal pieces. Three feet three inches long. Inhabits Guiana.

Genus 7.—TRICONYX.—*Geoffroy.*

Generic Character.—Back plate destitute of scales, but covered with a coriaceous skin, studded near each extremity with hard knobs; lips fleshy; nostrils prolonged into a cylindrical tube; three only of the five toes furnished with nails.

Trionyx ferox.—THE AMERICAN SOFT TORTOISE.

Shell ovate, dusky-brown, bony in the centre and cartilaginous on the margins, with five or six obscure transverse bands, and covered with small granulations, longest near the margin; head small, trigonal; snout much elongated; nostrils prominent and tubular. Eighteen inches long. Inhabits North America.

ORDER II.—SAURIA.

Body elongated, covered with scales ; four feet for the most part ; some have claws, and others are without them ; tail more or less elongated ; mouth furnished with teeth.

TRIBE I.—CROCODILIDÆ.

Genus 1.—GAVIALA.—Cuvier.

Generic Character.—Muzzle contracted, cylindrical, greatly elongated, spatuliform towards the point, tip acute ; teeth nearly equal ; hind legs serrated on the external margin ; feet palmed to the claws.

Gaviala Gangetica.—GANGETIC CROCODILE.

Plate LXIX. fig. 4.

Muzzle as long as the head, contracted ; superior jaw with 28 teeth on either side, lower jaw with 25 ; neck protected by two carinated plates ; eyes very large ; cranium with a deep indentation behind the eyes. Eighteen feet long. Inhabits India.

Genus 2.—CROCODILUS.—Cuvier.

Generic Character.—Muzzle oblong, conoid, depressed ; teeth of unequal length, fourth tooth in the under jaw lying along a groove in the upper ; legs serrated ; feet palmed.

Crocodilus vulgaris.—THE COMMON CROCODILE.

Plate LXIX. fig. 5. —The Egg, fig. 6.

Dusky on the upper parts, cream-yellow on the under parts ; tibial division of the legs varied with deep yellow, clouded in some places with sea green ; fourth tooth of the lower jaw fitting into a groove in the upper one ; with six rows of carinated square plates, covering the back ; neck protected by six plates ; upper side of the tail provided with a double bluntly serrated ridge, equal in length to the head and body. Thirty feet long. Inhabits the rivers of Africa.

Genus 3.—ALLIGATOR.—Cuvier.

Generic Character.—Snout broad and blunt ; teeth unequal,

the fourth on each side of the lower jaw produced, and received into a cavity in the upper one ; feet half webbed, and not denticulated.

Alligator sclerops.—THE ALLIGATOR.

Plate LXX. fig. 1.

Brownish-green above, irregularly marbled ; lower parts pale sulphur-yellow ; muzzle depressed, slightly tapered, with a central ridge ; jaws with nineteen teeth on each side ; a carinated dentated ridge, extending from each shoulder to the point of the tail, with a shorter one on each of the sides ; upper parts with strong regular excavated scales ; sides and limbs with reticulated and spotted scales ; under parts furnished with transverse plates. Twenty feet long. Inhabits the rivers of Brazil.

TRIBE II.—LACERTINIDÆ.

Genus 4. — MONITOR. — *Cuvier*.

Generic Character.—Scales on the head, abdomen, and tail, small and imbricated ; tail laterally compressed ; teeth in both jaws, but having none on the palate.

SECTION I.—Tail flattened with a carinated ridge.

Monitor variegatus.—THE VARIEGATED MONITOR.

Bluish-white, or yellowish-white, variegated with black and purple patches, and the tail with annulations of the same colour ; the tail is double the length of the body, round, and a little wrinkled on the sides ; with a triple plait under the throat.

SECTION II.—Tail nearly rounded, with a dentated ridge on its upper side. Inhabits New Holland.

SECTION III.—Tail nearly rounded, without a ridge.

Genus 5.—DRACÆNA.—*Cuvier*.

Generic Character.—Head furnished with angular plates ; scales on the back large, broad, and carinated, which are strongly serrated on the tail ; scales on the throat small ; abdominal and caudal scales rectangular ; tail round at its base, and compressed towards its point ; tongue bifid.

Dracæna Guianensis.—THE GUIANA DRACÆNA.

Plate LXX. fig. 2.

Head small, tapering; neck thick, body round, and the tail very long; colour brown, inclining to chestnut, paler on the abdomen, which is marked with numerous small yellow spots. Inhabits Guiana.

Genus 6.—TEIUS.—*Merrem*.

Generic Character.—Back scales smooth and small, a row of pores under the thighs; tail compressed, carinated in some species, and smooth in others; abdominal scales elongated; teeth notched; tongue forked.

SECTION I.—Tail carinated.

Teius bicarinatus.—THE BICARINATED TEIUS.

Reddish-brown, tinged with green in some parts; head small, mouth wide, snout rather acute; ridge of the back with two rows of serrated scales, which form a double carina, and become confluent on the tail, and are continued to the tip. Two feet five inches long. Inhabits South America.

SECTION II.—Tail divested of carina, and compressed towards the point.

Genus 7.—AMEIVA.—*Cuvier*.

Generic Character.—Head pyramidal; tongue bifid; tail cylindrical; with transverse rows of square scales throughout; those of the abdomen broader than long; scales of the throat small.

Ameiva lemniscata.—THE STRIPED AMEIVA.

Plate LXX. fig. 3.

Dusky blue, with eight longitudinal stripes above; sides and outside of thighs, with small white spots; under the thighs a range of tubercles. Inhabits Africa.

Genus 8.—LACERTA.—*Cuvier*.

Generic Character.—Palate provided with two rows of teeth; neck having a transverse collar of large scales, separated from

those of the abdomen by very small ones ; bone of the cranium protruding on the temples and orbits.

Lacerta viridis.—THE GREEN LIZARD.

Bright green, with numerous black or brown points above ; pale green on the abdomen and under parts.—*Daudin*, III. pl. 34.

Genus 9.—TAKYDROMUS.—*Cuvier*.

Generic Character.—Body and tail very much elongated ; back with rows of square scales ; skin of the thighs having spiracles ; with two anal vessels.

Takydromus sexlineatus.—THE SIX-LINED TAKYDROMUS.

Bright blue, glistening ; each side provided with three longitudinal black lines.—*Daudin*, III. pl. 39.

TRIBE III.—IGUANIDÆ.

Having the general form of the lizard ; tongue not extensible, but fleshy and thick, with a notch at the tip.

Genus 10.—CORDYLUS.—*Cuvier*.

Generic Character.—Head simple, without teeth in the palate ; back and abdomen covered with transverse rows of large scales ; a line of large spiracles on the thighs.

Cordylus Capensis.—CAPE CORDYLUS.

Body livid blue ; blackish-brown in some, and dusky in others. Inhabits the Cape of Good Hope.—*Seba*, I. pl. 84. fig. 3, 4.

Genus 11.—STELLIO.—*Daudin*.

Generic Character.—Head produced behind ; without palate teeth ; ears rounded and spinous ; body covered with sharp pointed scales ; thighs without spiracles ; tail long, acute.

Stellio vulgaris.—THE COMMON STELLIO.

Olive green, with dusky streaks ; back and thighs with some bands of larger scales. Twelve inches long. Inhabits Egypt.

Genus 12.—**MASTIGURA.**—*Fleming.*

Generic Character.—Destitute of palate teeth ; scales of the body smooth, and of uniform size ; tail scales larger and spinous ; spiracles under the thighs.

Mastigura spinipes.—**SPINY-FOOTED MASTIGURA.**

Body ventricose, grass-green, covered with very small scales ; tail spinous above, and also on the thighs. Three feet long. Inhabits Egypt.—*Geoffroy, Rept. Egypt*, pl. 2. fig. 2.

Genus 13.—**AGAMA.**—*Daudin.*

Generic Character.—Head tumid ; skin of the throat wrinkled transversely, and capable of being inflated ; body oblong, ventricose, covered with small carinated scales, raised into rough tubercles ; longer near the ears.

Agama muricata.—**MURICATED AGAMA.**

Plate LXX. fig. 4.

Brownish-gray ; upper parts with transverse dusky bars, which are most conspicuous on the legs and tail ; scales all muricated ; tail very long. Twelve inches long. Inhabits New South Wales.

Genus 14.—**TRAPELUS.**—*Cuvier.*

Generic Character.—Head tumid ; body oblong ; scales small, smooth, without any appearance of spines.

Trapelus Ægypticus.—*Geoffroy, Rept. Eg.* pl. 5. fig. 3, 4.

Genus 15.—**CALOTES.**—*Cuvier.*

Generic Character.—Scales on the body imbricated, with marginal edges ; ridge of the back furnished with a longitudinal carina, extending to the middle of the tail.

Calotes vulgaris.—**THE COMMON GALEOTE.**

Bright blue, variegated with transverse white bands ; with serrated scales behind the ears. Eighteen inches long. Inhabits India.—*Shaw's Zool.* III. pl. 64.

Genus 16.—**LOPHYRUS.**—*Dumeril.*

Generic Character.—Scales on the body, having the appear-

ance of shagreen; dorsal carina prolonged upon the tail, which is compressed.

Lophyrus scutatus.—THE SCUTATED LOPHYRUS.

With a broad crest extending from the nape of the neck to the shoulders, furnished with long sharp spines; back with a carina of pointed scales extending to the top of the tail. Sixteen inches long. Inhabits Asia.—Aquatic.

Genus 17.—BASILISCUS.—*Daudin*.

Generic Character.—Jaw-teeth strong, compressed, without any palate teeth; thighs with a row of spiracles; skin on the neck loose, without any pouch; crests scolloped, supported by long bony apophyses like the fins of fishes, extending from the bottom of the neck to the middle of the tail, and covered by thin translucent scales; scales of the abdomen and tail small, square.

Basiliscus mitratus.—THE MITRED BASILISK.

Plate LXX. fig. 5.

Head furnished with a conical inclined fleshy process or crest; back, and upper half of the tail, provided with broad crests, intersected by sharp bony divisions. Three feet long. Inhabits Brazil.

Genus 18.—DRACO.—*Linnæus*.

Generic Character.—Incisory teeth $\frac{4}{4}$, canines $\frac{1}{2}$, long and pointed; molars $\frac{5-5}{5-5}$ triangular; throat with a long gular pouch under it; tail long and carinated; no femoral spiracles; nape of neck with a small dentation; six false ribs supporting a wing-shaped extension of the skin; body covered with imbricated scales.

Draco lineatus.—THE FLYING DRAGON.

Plate LXX. fig. 6.

Pale blue, or bluish-gray; the tail and back with dusky undulations; wings with a border of white; under surface pale brown. Ten inches long. Inhabits Asia and Africa.

Genus 19.—IGUANA.—*Cuvier*.

Generic Character.—Head plated; jaws with a row of com-

pressed, triangular, and serrated teeth; with two small rows on the posterior margin of the palate; body and tail provided with small imbricated scales; back with a carina of pointed scales; throat with an inflated, laterally compressed, and pendulous appendage; a row of femoral spiracles.

Iguana nudicollis.—THE BARE-NECKED IGUANA.

Head with rounded plates; side of the neck devoid of tubercles; pouch without dentations.

Genus 20.—POLYCHRUS.—Cuvier.

Generic Character.—Head covered with small plates; maxillary teeth sharp and serrated, having small ones in the palate; throat capable of inflation and extension; back without a crest; body and tail with small scales.

Polychrus marmoratus.—THE MARBLED POLYCHRUS.

Brownish-gray, marbled with ferruginous irregular transverse bands; tail very long. Inhabits Guiana.

Genus 21.—ANOLIUS.—Cuvier.

Generic Character.—Generally provided with a gular pouch; teeth sharp and serrated, with small ones in the palate; claws greatly hooked; tail shagreened with small scales.

SECTION I.—Tail crested.

Anolius bimaculatus.—THE TWO-SPOT ANOLIUS.

Body green, spotted with brown upon the muzzle and sides; each shoulder with a black spot. Inhabits South America.

SECTION II.—Tail round.

TRIBE IV.—GECKOTIDÆ.

Genus 22.—GECKO.—Daudin.

Generic Character.—Body and head depressed; eyes large; tongue fleshy and not extensible; jaws with a row of numerous small and close teeth; skin covered with small shagreen-like scales, and frequently tuberculated below with smaller flat and

imbricated scales ; tail with transverse folds, completely encircling it ; toes widened in their whole length, or at the extremity only, having plicated or scaly skin.

Sub-Genus I.—*PLATYDACTYLI*.—Toes widened throughout, and provided below with transverse scales.

Sub-Genus II.—*HEMIDACTYLI*.—Base of the toes with an oval disc, formed underneath by a double row of scales ; the second phalange emanates from this disc, it is weak, and supports the last, or nail joint ; all the toes provided with nails ; anal region with a row of spiracles on both sides ; tail with large scales underneath.

Sub-Genus III.—*THECKADACTYLI*.—Toes expanded through their whole length, and provided with transverse scales, which are divided by a longitudinal groove ; hallux without a nail ; tail with small scales both above and below ; destitute of femoral pores.

Sub-Genus IV.—*PTYODACTYLI*.—Toes divided at the point only ; striated beneath ; nails hooked and placed in a fissure.

Gecko caudiverbera.—THE SCALLOP-TAILED GECKO.

Plate LXXI fig. 1.

Dusky-black ; back covered with distant red tubercles, each surrounded by a circle of small white scales ; thighs and tail with similar tubercles without the surrounding scales ; tail provided with a scalloped fin-like membrane on each side, increasing as it approaches the tip, where it is broadest. Sixteen inches long. Inhabits Arabia.

Sub-Genus V.—*PHYLLURI*.—Toes not widened ; tail depressed and cordiform.

TRIBE V.—*CHAMÆLEONIDÆ*.

Genus 23.—*CHAMÆLEON*.—*Cuvier*.

Generic Character.—Body compressed ; back carinated, entirely covered with papillose, shagreen-like scales ; tail round,

long, and prehensile; feet with five toes each, the anterior ones having two toes in front and three behind, and the posterior ones with three toes before and two behind, all united as far as the nails by a membrane; tongue fleshy, cylindrical, and capable of much extension; teeth with three lobes; eyes large, having separate movements, and nearly covered with the eyelids; divested of external ears; occiput produced; lungs comprehensive.

Chamæleon vulgaris.—THE COMMON CHAMELEON.

Plate LXXI. fig. 2.

Head carinated over each eye; occiput and body furnished with a crest; scales on the back small cuneiform, those on the sides larger and tuberculated. Ten inches long. Inhabits India, Africa, and Southern Europe.

TRIBE VI.—SCINCIDÆ.

Legs very short; tongue not extensible; body covered with imbricated scales.

Genus 24.—SCINCUS.—*Daudin*.

Generic Character.—Body elongated, covered with imbricated glistening scales of an oblong or rounded shape; tongue fleshy, somewhat extensible, and slightly cleft at tip; jaws provided with small close-set teeth, and two rows in the palate; toes free, without nails.

Scincus occiduus.—THE GALLEY-WASP.

Plate LXXI. fig. 3.

Body pale ferruginous, with white transverse fillets; tail short; molar teeth rounded, and two small lobes before the tympanum. Fifteen inches long. Inhabits Jamaica.

Genus 25.—SEPS.—*Daudin*.

Generic Character.—Body, neck, and tail, cylindrical and much elongated; covered with rounded elliptical scales; tongue short, slightly cleft at the point; feet small, the anterior and posterior ones far apart; toes varying from three to five.

Seps tridactylus.—THE THREE-TOED LFT.

Feet provided with three very short toes without nails; body

cinereous above, with four longitudinal brown streaks ; pale ash below.—*Daudin*, plate 57.

Genus 26.—BIPEs.—*Lacepede*.

Generic Character.—Destitute of fore feet ; the scapulars and clavicles being concealed under the skin ; feet slightly divided in some species, and completely attached in others.

Bipes gronovi.—GRONOVius's BIPEs.

Tail shorter than the body ; scales on the back with small brown dots ; feet placed far back and the toes connected to their tips.

Genus 27.—CHALCIDES.—*Daudin*.

Generic Character.—Head somewhat obtuse ; no distinct neck ; body greatly elongated ; four short feet, furnished with from one to three toes ; scales not imbricated, but arranged in transverse bands.

Chalcides tridactyles.—THE THREE-TOED CHALCIDES.

Ferruginous, with longitudinal dark brown stripes ; feet with three toes, without nails.—*Daudin*, IV. plate 58, fig. 3.

Genus 28.—CHIROTES.—*Cuvier*.

Generic Character.—With fore-feet only ; head obtuse ; no distinct neck ; body greatly elongated ; with from one to five toes on the feet.

Chirotos lumbricoides.—THE WORM-SHAPED CHIROTES.

Body longitudinally furrowed on the sides ; feet with five toes, four of which are provided with claws and one devoid of a claw. Eight inches long. Inhabits Mexico.

ORDER III.—OPHIDIA.

Heart with two auricles ; body greatly elongated, cylindrical, and destitute of feet ; for the most part covered with scales.

TRIBE I.—ANGUINES.

Teeth small, nearly of equal length ; tongue with a luniform notch ; ribs united in a greater or smaller degree so as to supply the place of a sternum, or breast-bone ; eyes provided with three eyelids.

Genus 1.—OPHISAURUS.—Daudin.

Generic Character.—With an external visible tympanum ; maxillary teeth conical ; palate provided with two small groups of teeth.

Ophisaurus ventralis.—THE BELLIED OPHISAURUS.

Yellow-green above, spotted with black ; pale yellow below ; sides with a deep longitudinal groove, and smaller scales ; tail longer than the body. Twenty-four inches long. Inhabits North America.—*Catesby's Carolina*, II. plate 59.

Genus 2.—ANGUIS.—Cuvier.

Generic Character.—Tympanum hid under the skin ; maxillary teeth compressed and hooked ; palate destitute of teeth.

Anguis fragilis.—THE BLIND WORM.

Plate LXXI. fig. 4.

Yellow above, with metallic reflections ; dusky below, scales smooth and shining ; back with three longitudinal dorsal lines, which change into spots by age, and alternately disappear ; tail longer than the body.

Genus 3.—ACONTIAS.—Cuvier.

Generic Character.—Without sternum or pelvis ; teeth conic ; second lobe of the lungs merely rudimentary.

Acontias meleagris.—THE SPOTTED ACONTIAS.

Back with eight rows of longitudinal brown spots ; tail short and obtuse. Inhabits Guiana.—*Seba*, II. pl. 21, fig. 1.

TRIBE II.—SERPENTES.

Having no sternum, nor scapular bones, and without a third eyelid.

SUB-DIVISION I.—Jaws not capable of dilation.

Genus 4.—AMPHISBÆNA.—*Linnæus*.

Generic Character.—Body encompassed by circular annulations of quadrangular scales; a row of spiracles before the anal region; teeth few, and in the jaws only; oviparous.

Amphisbæna alba.—THE WHITE AMPHISBÆNA.

White; head covered by six large scales; anal region surrounded by eight small tubercles. Eighteen inches long. Inhabits America.—*Shaw*, III. pl. 134.

Genus 5.—TYPHLOPS.—*Schneider*.

Generic Character.—Snout depressed, provided with plates; tongue long, bifurcated; eyes scarcely visible; body covered with small imbricated scales; anus near the extremity of the body.

Typhlops lumbricalis.—THE WORM-SHAPED TYPHLOPS.

Fore part small, posterior portion thicker; of a livid bluish-white colour. Eight inches long. Inhabits South America.

SUB-DIVISION II.—Jaws capable of great dilation.

* Body cylindrical; tongue short.

Genus 6.—TORTRIX.—*Oppel*.

Generic Character.—Abdominal scales, and those under the tail, larger than the others; tongue thick and short; tail very short.

Tortrix ater.—THE BLACK-BANDED TORTRIX.

Body white, furnished with black bands. Seventeen inches long. Inhabits South America.

** Occiput more or less gibbous; tongue forked, and extensible to a considerable degree.

Genus 7.—BOA.—*Linnæus*.

Generic Character.—Anal region provided with a hook on each side; body compressed, inflated towards the middle; tail

prehensile; scales small, and particularly so upon the back of the head.

Boa constrictor.—THE GREAT BOA.

Plate LXXI. fig. 6.

Ground colour yellowish-gray, with a large chestnut-coloured interrupted chain, extending down the back from the head to the tip of the tail, and subtrigonal spots down the sides. Thirty-five feet long. Inhabits India, Africa, and South America.

Genus 8.—ERIX.—*Daudin*.

Generic Character.—Under the body and tail a row of longitudinal scales of a large size; head with nine plates; teeth small and pointed.

Erix Clivica.—THE CLIVIAN ERIX.

Ash-coloured brown, with a cordated frontal scale. Inhabits the Duchy of Cleves, Westphalia.

Genus 9.—ERPETON.—*Lacepede*.

Generic Character.—Head with large plates, having two soft protuberances covered with scales, at the point of the muzzle; those of the abdomen smaller; the scales under the tail different from the others.

Erpeton tentaculatus.—THE TENTACULATED ERPETON.

Total length four inches, the tail being about a third of its length.—*Lacepede, An. Mus.* II. pl. 50.

*** Shields under the tail, set in pairs.

Genus 10.—PYTHON.—*Daudin*.

Generic Character.—Anal region furnished with lateral hooks; neutral plates narrow; plates of the head large and numerous.

Python rhombeatus.—THE LONG SPOTTED PYTHON.

Brownish-gray, with three alternating longitudinal rows of ovate and somewhat rhombic dusky spots, blue in the centres; abdomen pale, clouded with blue-gray. Three feet long. Inhabits Amboyna.

Genus 11.—HURRIA.—Daudin.

Generic Character.—Body with a single row of longitudinal plates underneath ; tail with a double row. No species described.

Genus 12.—DIPSAS.—Laurenti.

Generic Character.—Head broader than the body, which is compressed ; ridge of the back provided with larger scales than those on the rest of the animal.

Dipsas Indica.—THE BULL-HEADED DIPSAS.

Brown, with broad transverse grayish-white bars ; tail long and slender. Four and a half feet long. Inhabits Ceylon.—*Shaw*, III. pl. 109.

Genus 13.—COLUBER.—Cuvier.

Generic Character.—Abdomen with transverse plates, subdivided under the tail, or forming a double row ; head depressed, with nine larger plates ; teeth nearly equal ; destitute of poison fangs.

Coluber natrix.—THE RINGED SNAKE.

Body cinereous, spotted with black along the sides, and three white spots forming a collar round the neck ; scales carinated. Four feet long. Inhabits Britain.—*Pennant's Brit. Zool.* III. pl. 5.

Genus 14.—ACROCHORDUS.—Hornsted.

Generic Character.—Body much thicker than the tail, both are covered with small uniform tuberculous scales ; jaws provided with two rows of teeth.

Acrochordus Javensis.—THE JAVA ACROCHORDUS.

Black above, white beneath ; sides gray, spotted with black, or dusky ; head truncated and depressed ; body thickening towards the tail, which is greatly smaller than the body. Eight feet long. Inhabits Java.—*Shaw*, III. pl. 128.

**** Mouth provided with poison fangs.

Genus 15.—PSEUDOB OA.—Oppel.

Generic Character.—Head short, covered with large plates ;

occiput somewhat prominent; plates of the abdomen single; back carinated with a longitudinal row of broad scales.

Pseudoboa fasciata.—THE FASCIATED BOA.

Yellow; body subtriangular, with blue annulations. Five feet long. Inhabits India.—*Shaw*, III. pl. 99.

Genus 16.—TRIMERESURUS.—*Lacépède*.

Generic Character.—Head with large plates; those under the tail and near the vent single, but double towards the extremity.

Trimeresurus leptcephalus.

Head very small, with nine large plates; scales on the neck striated, the others smooth.—*An. Mus.* IV. pl. 56. fig. 1.

Genus 17.—HYDROPHIS —*Cuvier*.

Generic Character.—Head small, covered with large plates; abdomen provided with a row of scales larger than the others; tail compressed.

Hydrophis spiralis.—THE SPIRAL HYDRUS.

Yellow, with deep chestnut-brown bands, having a longitudinal band, and intermediate spots; longitudinally confluent beneath; body spirally contorted, and flattened obliquely in alternate divisions on one side, and rounder on the opposite; back with a sharp carina. Two feet long. Habitat unknown.—*Shaw*, III. pl. 125.

Genus 18.—PELAMIS.—*Cuvier*.

Generic Character.—Abdomen and head with larger plates than the body; occiput tumid; scales of the body small and equal; tail compressed.

Pelamis bicolor.—THE BLACK-BACKED PELAMIS.

Head and upper parts intense black; under parts pale yellow; tail spotted with black; side scales small, of a gamboge yellow colour. Two and a half feet long. Inhabits the sea at the Island of Otaheite.—*Shaw*, III. plate 126.

Genus 19.—CHERSYDRUS.—*Cuvier*.

Generic Character.—Head small, obtuse; back triangular and

carinated; body thicker in the centre, and tapering abruptly towards the tail; head and body covered with small scales; abdomen carinated.

Chersydrus fasciatus.—THE FASCIATED CHERSYDRUS.

Dusky-brown, with paler bands. Eighteen inches long. Inhabits Java.—*Shaw*, III. plate 130.

***** With isolated poison fangs.

Genus 20.—CROTALUS.—*Linnaeus*.

Generic Character.—Head broad, triangular, and depressed; scales carinated; tongue bifurcate; a depression behind the nostrils; upper maxillary bones with isolated fangs; tail with transverse plates; extremity provided with a rattle of hollow, rigid, articulated, and moveable, plates.

* Scales of the head and back the same.

Crotalus horridus.—THE RATTLESNAKE.

Plate LXXI. fig. 7.

Brown, with transverse, irregular black bands; point of the tail dusky. Eight feet long. Inhabits America.

** Head provided with large plates.

Genus 21.—SCYTALUS.—*Latreille*.

Generic Character.—Upper jaw provided with poisonous fangs; body and tail with a row of transverse plates.

Scytalus ziczac.—THE HORATTA BOA.

Dark brown, with an undulated yellow band on each side, and a row of dorsal spots. Fifteen inches long. Inhabits India. *Russ. Ind. Sub. fig. 2. pl. 2.*

Genus 22.—ACANTHOPHIS.—*Daudin*.

Generic Character.—Anterior part of the head with large plates; upper jaw with poisonous fangs; back part of the head tumid, and with scales the same as on the back; under the tip of the tail are double plates, and terminated by a pointed spur.

Acanthophis Brownii.—BROWN'S ACANTHOPHIS.

Body blackish; lower lip white; a transverse groove in front of the nostrils; tail short and depressed. Eight inches long. Inhabits New Holland.—*Leach, Zool. Mis.* pl. 3.

Genus 23.—LANGAHA.—*Bruguiera*.

Generic Character.—Head with seven large plates, and a central one between the eyes; muzzle long and acute; upper jaw greatly longer than the under one, with poisonous fangs; body covered above anteriorly with small scales, and having plates behind the vent surrounding the tail, which towards its tip is provided with small scales.

Langaha nasuta.—THE SNOUTED LANGAHA.

Scales on the upper surface reddish, white below, each marked by a gray circle; snout much elongated. Two feet eight inches long. Inhabits Madagascar.—*Shaw, III.* pl. 127.

***** Having transverse plates on the abdomen, sub-divided under the tail.

Genus 24.—TRIGONOCEPHALUS.—*Oppel*.

Generic Character.—Head broad behind, and in some species covered with scales like those of the back, in others they are granulated; with depressions behind the nostrils; upper jaw with poisonous fangs; tail frequently terminated by a small horny spur.

Trigonocephalus atrox.—THE FIERCE TRIGONOCEPHALUS.

Grayish-brown above with transverse linear whitish stripes; abdomen dusky, with transverse irregular patches. Eighteen inches long. Inhabits Ceylon.

Genus 25.—PLATURUS.—*Latreille*.

Generic Character.—Head covered with large plates; upper jaw with poisonous fangs; tail compressed, provided with two rows of plates, terminated by two large ones.

Platurus laticaudatus.—THE BROAD-TAILED PLATURUS.

Lead-coloured, with broad, well-defined, equidistant, trans-

verse, black bands; abdomen and head yellowish. Two feet long. Inhabits the Indian and American seas.

Genus 26.—NAIA.—Laurenti.

Generic Character.—Plates of the head larger than those of the body; body plates longest near the head; occiput furnished with a hood; upper jaw with poisonous fangs.

Naia vulgaris.—THE SPECTACLE SNAKE.

Plate LXXII, fig. 1.

Yellow ferruginous above; neck capable of being inflated, with a spectacle-shaped white mark above, margined with black. Four feet long. Inhabits India.

Genus 27.—ELAPS.—Schneider.

Generic Character.—Head with large plates; jaws provided with poison fangs, capable of but little dilation; head behind of same breadth as the neck.

Elaps lacteus.—THE WHITE ELAP.

White; body marked above by a double row of black spots; head black, with a longitudinal white streak. Eighteen inches long. Inhabits India and South America.

Genus 28.—COBRA.—Laurenti.

Generic Character.—Head from behind the eyes to the mouth, sub-triangular with carinated scales; upper jaw with poisonous fangs.

Cobra Lachesis.—THE LACHESIS COBRA.

Yellowish-gray, variegated with umber-brown, and dusky spots and patches; scales unconnected, carinated; the head is indistinctly formed, and the tail short.

Genus 29.—VIPERA.—Cuvier.

Generic Character.—Head with granulated scales; upper jaw with poisonous fangs; plates under the tail sub-divided.

Vipera Berus.—THE COMMON VIPER.

Brown, with a black zigzag line on the dorsal ridge, and a

row of black spots on each side ; belly blue-gray. Two feet three inches long. Inhabits Europe.—*Shaw*, III. pl. 101.

TRIBE III.—NAKED SERPENTS.

Genus 30.—CÆCILIA.—Linnaeus.

Generic Character.—Body cylindrical ; skin not protected by scales, but having longitudinal folds ; eyes extremely small.

Cecilia glutinosa.—THE WHITE-SIDED CÆCILIA.

Plate LXXII. fig. 2.

Head long and tumid ; nostrils wide ; deep brown, with a white longitudinal stripe on each side, disposed so as to form a slight carina. Twelve inches long. Inhabits South America.

ORDER IV.—BATRACHIA.

Heart with one auricle ; body covered with a naked cuticle ; provided with lungs in the natural state ; but with branchiæ, like fishes in their immature condition before they are transformed.

Genus 1.—RANA.—Linnaeus.

Generic Character.—Body slender ; fore-legs short, feet with generally four toes, free ; hind-legs long, muscular, feet with five toes, usually palmated to the extremities ; skin smooth ; upper jaw provided with a row of small teeth, and an interrupted transverse one in the middle of the palate ; males with a thin extensible membrane under the ear, which is inflated with air when they croak.

Rana esculenta.—THE GREEN FROG.

Plate LXXII. fig. 3.

Green, spotted with black ; back with three longitudinal yellow lines ; abdomen clear white.

Genus 2.—HYLA.—Cuvier.

Generic Character.—Body somewhat compressed, elongated, and smooth ; tongue short and thick ; fore-feet provided with four toes, free ; hind-feet with five, all clawless, but in their

stead, ventricular tubercles ; male with a pouch under the throat, capable of being inflated.

Hyla arborea.—THE TREE FROG.

Plate LXXII. fig. 11.

Body vivid yellow-green above, silvery white below, with a black and yellow stripe on each side of the body ; abdomen granulated ; none of the feet webbed. Inhabits Europe.

Genus 3.—BUFO.—Cuvier.

Generic Character.—Head with a broad projection behind the ears ; jaws without teeth ; body thick, short, and broad, covered with warted papillæ above, from which exudes a fetid fluid ; eyes large and projecting ; fore feet with four free toes ; hind feet short, with five toes, mostly palmated.

Bufo calamita.—THE MEPHETIC TOAD.

Plate LXXII. fig. 6.

Olive-green above, with brown spots, reddish warts, and a line of sulphur-yellow down the middle of the back ; pale-gray beneath. Inhabits Europe.

Bufo cornutus.—THE HORNED TOAD.

Plate LXXII. fig. 10.

Head and jaws very large, with a conical auriform erect membrane above each eye ; ash-yellow above, with a white longitudinal lanceolate band on the middle of the back, and beset with small pearl-like specks ; several longitudinal black bands on the body, and the limbs transversely filleted with dusky-brown ; under parts paler. Inhabits South America.

Genus 4.—PIPA.—Laurenti.

Generic Character.—Body considerably depressed ; head large and triangular ; destitute of a tongue ; tympanum concealed under the skin ; eyes small, situated towards the margin of the upper jaw ; toes of the fore feet with four free toes, and furnished with radiated somewhat obtuse points ; largest of the male very long and triangular ; hind feet with five toes webbed to the points, and furnished with nails.

Pipa Surinamenses.—THE SURINAM PIPA.

Plate LXXII. fig. 8.

Body olivaceous, speckled with red; skin round the neck forming a wrinkled collar; abdomen brown, obscurely spotted with yellow. Seven inches long. Inhabits Surinam.

Genus 5.—SALAMANDRA.—*Brongniart*.

Generic Character.—Head depressed; body elongated; tail long, cylindrical in some species, and depressed in others; ears hidden, and with a minute cartilaginous plate upon the orifice; jaws with numerous small teeth, and two longitudinal rows of similar teeth in the palate; tongue short, thick, adhering to the under jaw; without a third eyelid; fore feet with four toes; hind feet with five.

SECTION I.—TERRESTRIAL.—Tail in the adult state rounded.

Salamandra terrestris.—THE SALAMANDER.

Plate LXXII. fig. 8.

Head obtuse; head, body, and tail, deep black, variegated with irregular patches of bright orange-yellow. Eight inches long. Inhabits Europe.

Genus 6.—PROTEUS.—*Laurenti*.

Generic Character.—Body elongated, cylindrical; tail compressed; tongue short and thick, attached, except at the point; eyes excessively small, concealed by the skin; fore feet with three divided toes; hind feet with two, free, all destitute of claws; furnished with interior lungs and persistent branchiæ.

Proteus anguinus.—THE PROTEUS.

Plate LXXII. fig. 9.

Body smooth, pale gray; tail compressed; branchiæ scarlet or carmine-red. Twelve inches long. Inhabits subterranean streams in Carneola.

Genus 7.—SIREN.—*Linnaeus*.

Generic Character.—Body elongated, cylindrical; tail compressed; tongue short, thick, and attached; two feet only,

placed far forward, with four toes ; having internal lungs and persistent branchiæ.

Siren lacertina.—THE SIREN.

Plate LXXI. fig. 5.

Body black, speckled with white, eel-shaped ; white beneath ; sides wrinkled ; tail provided with a soft adipose fin. Two feet long. Inhabits Carolina.

FOSSIL REPTILES.

Many different genera of fossil Reptiles have been discovered in various places of Europe, chiefly in the chalk formations ; of which we have figured two remarkable species, viz. :—

PLESIOSAURUS.—Plate LXXIII. fig. 1.—An animal approaching near to the crocodile in form, but having double the number of vertebræ ; its neck resembles the body of a serpent, its head that of a lizard ; and in place of feet has fin-like swimming apparatus like those of whales.

ICHTHYOSAURUS.—Plate LXXIII. fig. 2.—This recedes from the lizard tribe, and approaches in form to that of a fish, in the structure of its vertebral column, and has paddle-shaped membranes for progression ; it has the snout of a dolphin, the teeth of a crocodile, the head and sternum of a lizard, and paddles of a whale. Forty feet long. Found in the lias and Oxford clay, &c.



CLASS FOURTH.

FISHES.

VERTEBRATED animals with cold red blood, and respire by means of gills or branchiæ, and progressing in water by means of fins.

The head in all fishes is large in proportion to the size of the body; and although subject to great variety of form, consists of the same number of bones. These are separated in young fishes, but in adults they become solid, and are then difficult to be distinguished. In the head of the perch there are eighty distinct pieces. The brain is contained in a gelatinous matter, consisting of a number of ganglions.

The nostrils are simple cavities placed at the front of the snout, in the interior of which are radiated laminæ.

The cornea of the eye is much depressed, and has but a small proportion of the aqueous humour, but provided with a hard globular crystalline lens. They are large in proportion to the size of the animal.

The sac represents the vestibule of the ear, in which are suspended bones of the hardness of flint. There are neither Eustachian tubes nor tympanal bones. It is probable that some vibration may be conducted to the head, something analogous to sound, but this must be very imperfect.

The motion of the head is exceedingly limited. In some cartilaginous fishes it is attached to the vertebral column by two condyles, but this contributes very little to extension or motion.

The tongue varies in different tribes; it is fleshy in some, and osseous in others, so that its sense of taste must be very obtuse. In the latter case it is frequently provided with teeth, or corneous papillæ. The body being covered with scales must also prevent much sensibility to touch. This sense is probably supplied in some families by the fleshy filamentous process.

There is great variety in the construction of the teeth of fishes; while some genera are entirely destitute of them. Some species have them placed either in the jaws, the palate, the tongue, or the gullet; while others have them all at one time.

The stomach is generally simple, with a short intestinal canal.

The sexes are distinguished by the male having a milt, and the female a roe. The latter is composed of a multitude of eggs, which the female deposits in some appropriate place, and leaves them to develop without her aid, or even afterwards caring for them. They are impregnated or imbued with the vivifying principle by the male, after their extrusion from the female.

The fecundity of fishes is very remarkable. In the roe of a cod Lieuenhoek found 3,686,760 eggs; that of a flounder contained 1,357,400.

Fishes are long-lived animals, although we are yet but imperfectly acquainted with the comparative longevity of the different races. We have authenticated accounts of a *pike* having been known to live 260 years, and of a *carp* which was 200 years old. This, no doubt, depends upon the density of the medium in which they exist, and their being less liable to the influence of atmospheric change of temperature.

There have been many attempts at the classification of fishes, both by artificial systems and also from natural arrangements, but that of Cuvier seems the best which has yet been adopted. It is that system which we intend to follow.

Cuvier divides all fishes into two sub-classes, namely:—

SUB-CLASS I.—CARTILAGINOUS FISHES.

It consists of three orders:—

ORDER I. CYCLOSTOMI.—II. SELACHII.—And, III. STUR-
ONES.

SUB-CLASS II.—OSSEOUS FISHES.

It consists of six orders:—

IV. PLECTOGNATHI. — V. LOPHOBRANCHII. — VI. MALACOPTERYGII ABDOMINALES. — VII. MALACOPTERYGII SUBRACHIATI. — VIII. MALACOPTERYGII APODES. — IX. ACANTHOPTERYGII.

SUB-CLASS I.—CARTILAGINOUS FISHES.

ORDER I.—CYCLOSTOMI.

Jaws fixed in an immoveable ring; branchiæ adhering, with numerous openings.

Genus 1.—PETROMYZON.—*Dumeril*.

Generic Character.—Maxillary ring provided with strong teeth; lips formed for sucking; tongue beset with two rows of minute teeth; a dorsal fin before, and another behind the anal region.

Petromyzon fluviatilis.—THE LESSER LAMPREY.

Plate LXXIV. fig. 1.

Back dark olive-green; silvery-white beneath; first and second dorsal fins distinct; top of the maxillary ring provided with two large teeth. Eighteen inches long. Inhabits the rivers in Britain.

Genus 2.—AMMOCETES.—*Dumeril*.

Generic Character.—Body membranous, soft; openings of the branchiæ similar to those of the lamprey's; lip luniform, covering the upper part of the mouth only; destitute of teeth; dorsal and caudal fins united, and forming a sinous ridge.

Genus 3.—GASTROBRANCHIUS.—*Bloch*.

Generic Character.—Maxillary with a single tooth above, and membranous; tongue with strong lateral dentations, and arranged in double rows on each side; two spiracles situated under the abdomen.

Gastrobranchus cæcus.—THE GLUTINOUS HAG.

Plate LXXIV. fig. 2.

Body silvery iridescent-white, with reddish reflections towards the head and tail; furnished with a double row of lateral pores. Six inches long. Inhabits the European seas.

ORDER II.—SELACHII.

Branchiæ toothed, the openings numerous, without lids or membranes; palatine and postmandibular bones provided with teeth, instead of jaws.

TRIBE I.—SQUALIDES.

Genus 1.—SCYLLIUM.—Cuvier.

Generic Character.—Snout abbreviated and obtuse; nostrils situated near the mouth, placed in the furrow; provided with spiracles; teeth notched; dorsal fins placed far back; branchial openings partly above the pectoral fins; caudal fin truncated at the point.

Scyllium catulus.—THE SPOTTED SHARK, OR DOG-FISH.

Plate LXXIV. fig. 3.

Body ash-coloured, streaked with red in some parts, and with large brown spots; ventral fins united. Two feet long. Inhabits the European seas.

Genus 2.—CARACHARIAS.—Cuvier.

Generic Character.—Snout produced, conical, and depressed; nostrils below the centre; teeth formed in many rows, edged, pointed, and frequently with denticulated margins; divested of spiracles; first dorsal fin anterior to the ventrals, the second nearly opposite the anal fin; last branchial opening above the pectoral fins.

Caracharias vulgaris.—THE WHITE SHARK.

Plate LXXIV. fig. 4.

Dark ash-colour above, and paler below; tail trilobed. Thirty feet long. Inhabits all seas.

Genus 3.—LAMNA.—Cuvier.

Generic Character.—Snout pyramidal, nostrils situated at its base; numerous teeth, set in rows; branchial orifices placed before the pectoral fins.

Lamna cornubiensis.—THE PORBEAGLE SHARK.

Plate LXXIV. fig. 4.

Blue-black above, silvery-white below; tail semilunar, carinated on each side; caudal lobes nearly equal; teeth small, with two basal processes. Eight feet long. Inhabits the European seas.

Genus 4.—ZYGÆNA.—Cuvier.

Generic Character.—Head depressed, placed transverse like the head of a hammer; eyes situated at the extremities of the branches; and the nostrils at their anterior margin.

Zygæna vulgaris.—THE HAMMER-HEADED SHARK.

Plate LXXIV. fig. 6.

Body long, dark brown above, and white in the under parts; upper dorsal fin scythe-shaped, the second one small, and near the tail. Fifteen feet long. Inhabits the Mediterranean.

Genus 5.—GALEUS.—Cuvier.

Generic Character.—Body lengthened; snout produced and acute; having temporal spiracles; teeth serrated on their exterior side; first dorsal fin situated nearly above the pectoral fins.

Genus 6.—MUSTELUS.—Cuvier.

Generic Character.—Body elongated; snout obtuse; having temporal orifices; teeth numerous, close set, and obtuse; dorsal fins spineless.

Genus 7.—NOTIDANUS.—Cuvier.

Generic Character.—Head small, blunt, depressed, having temporal spiracles; teeth compressed and serrated; with a single dorsal fin.

Genus 8.—SELACHE.—Cuvier.

Generic Character.—Body elongated; head small, with tem-

poral spiracles; branchial openings encompassing nearly the whole circle of the neck; teeth small, conical, and dentated; first dorsal fin situated nearly between the pectorals and ventrals.

Selache maximus.—THE BASKING SHARK.

Plate LXXIV. fig. 7.

Back dark lead-coloured gray; abdomen white. Thirty feet long. Inhabits the European seas.

Genus 9.—CESTRACION.—Cuvier.

Generic Character.—Jaws sharp, the length of the snout, furnished with small sharp teeth, and with rhomboidal teeth near the angles; each fin with a spine placed before it.

Genus 10.—SPINAX.—Cuvier.

Generic Character.—Snout lengthened, and obtuse at the point; teeth placed in numerous rows, small, and cutting; a strong spine in front of each dorsal fin; destitute of an anal fin.

Genus 11.—CENTRINA.—Cuvier.

Generic Character.—Teeth of the under jaw edged, set in one or two rows; teeth of the upper jaw acute, and set in numerous rows; skin very rough; second dorsal fin situated above the ventrals; without an anal fin; tail short.

Genus 12.—SCYMNUS.—Cuvier.

Generic Character.—Snout short, blunt; teeth in the upper jaw set in one or two rows, and edged; those of the under jaw in numerous rows, and pointed; without spines before the dorsal fins.

Genus 13.—SQUATINA.—Dumeril.

Generic Character.—Head round, depressed; mouth terminal; having temporal spiracles; pectoral fins large, reaching forwards to the head, and separated from the neck by a cleft, in which the branchial openings are situated; the dorsal fins placed greatly behind the ventrals; without an anal fin.

Squatina lævis.—THE ANGEL SHARK.

Plate LXXV. fig. 1.

Upper parts gray and tuberculated, white beneath; head cir-

cular, broader than the body. Eight feet long. Inhabits the European seas.

Genus 14.—PRISTIS.—Latham.

Generic Character.—Head elongated; beak with a lengthened and depressed horny process, having three strong short spines on either side; teeth thickly set, and depressed; branchial openings four or five, situated below on each side; two spiracles behind the eyes; body depressed anteriorly.

Pristis antiquorum.—THE SAW-FISH.

Plate LXXV. fig. 2.

Horny beak, provided with 24 large teeth on each side; body dusky above, pale gray below. Fifteen feet long. Inhabits the European seas.

TRIBE II.—PLATYSOMI.

Genus 15.—RHINOBA'TUS.—Schneider.

Generic Character.—Snout angular, jaw having five branchial openings below; body depressed; tail long, and very thick at the base; dorsal and caudal fins separated; teeth set in fives, and serrated.

Genus 16.—TORPEDO.—Dumeril.

Generic Character.—Head and anterior part of the body blended together, scarcely separable; body greatly depressed, which, with the head, are obtuse before, and nearly circular; anterior borders formed by productions of the snout, which extend along the sides, and terminate at the pectoral fins; each side provided beneath with five branchial openings; electrical apparatus on the sides; teeth small and acute; tail short and fleshy.

Torpedo vulgaris.—THE TORPEDO.

Plate LXXV. fig. 3.

Ash-coloured above, with five large circular blackish-brown spots; paler in the centre; abdomen dull white. Four feet long. Inhabits the European seas.

Genus 17.—RAIA.—Cuvier.

Generic Character.—Disc somewhat rhomboidal, with five branchial openings beneath on each side; tail slender, with two small fins on its ridge, near the extremity; teeth small, numerous, thick, set in fives; males provided with hooked spines on the pectoral fins.

Raia oxyrhynchus.—THE SHARP-NOSED RAY.

Plate LXXVII. fig. 8.

Body greatly depressed, ash-coloured above, with pale dusky spots and streaks; white beneath, with gray spots; snout considerably produced; dorsal spines continuous along the tail. Six feet long. Inhabits the British seas.

Genus 18.—TRYGON.—Adanson.

Generic Character.—Head uniting with the pectorals to form an acute angle; teeth slender, placed in fives; tail without a fin, and furnished with serrated or spinous points.

Genus 19.—MYLIOBATIS.—Dumeril.

Generic Character.—Head projecting beyond the pectoral fins; these are of greater transverse breadth than in similar genera; jaws provided with large flat teeth, differing in extent; tail very long and slender, terminating in a short point furnished with a bony spine, serrated on both sides, with a small dorsal fin near its base.

Genus 20.—CEPHALOPTERA.—Dumeril.

Generic Character.—Head truncated in front; teeth slender, finely serrated; five or six branchial openings below, on both sides; body depressed; pectoral fins large, projecting beyond the head; tail slender, conical, narrower than the body.

Cephaloptera diabolis.—THE DEVIL RAY.

Plate LXXV. fig. 4.

Black; tail very acute; a dorsal fin at the commencement of the tail. Four feet broad. Inhabits the Indian seas.

TRIBE III.—CHIMÆRÆ.

Genus 21.—CHIMÆRA.—Cuvier.

Generic Character.—Snout subconic, with one branchial opening on each side of the neck ; body lengthened and compressed ; second dorsal fin commencing immediately behind the first ; tail terminated by a long filament.

Chimæra monstrosa.—THE NORTHERN CHIMÆRA.

Plate LXXV. fig. 5.

Body compressed, silvery-white, marbled with deep chestnut-brown ; head large, with two incisory teeth in each jaw. Four feet long. Inhabits the North seas.

Genus 22.—CALLORYNCHUS.—Gronovius.

Generic Character.—Snout ending in a fleshy hoe-shaped elongation ; second dorsal fin commencing over the ventrals, and terminating opposite the anterior edge of the fin under the tail.

Callorynchus Australis.—THE SOUTHERN CALLORYNCHUS.

Plate LXXV. fig. 6.

Silvery ; the back pale reddish fawn-colour, and the fins of the same colour. Four feet long. Inhabits the South seas.

ORDER III.—STURIONES.

Branchiæ free, their openings greatly cleft, with an operculum, but the membrane devoid of rays ; branchiæ free.

Genus 1.—ACIPENSER.—Linnæus.

Generic Character.—Body elongated, which, with the head, is provided with rows of radiated bony prominences ; mouth placed under the snout, cylindrical, and divested of teeth ; four cirri below the snout.

Acipenser Sturio.—THE STURGEON.

Plate LXXV. fig. 7.

Upper parts ash-coloured, variegated with blackish brown ;

body provided with five rows of large bony tubercles, one on the back and two on each side; abdomen flattened, and dull white. Eighteen feet long. Inhabits the European seas.

Genus 2.—SPATULARIA.—*Shaw.*

Generic Character.—Snout greatly prolonged, spatuliform; with a branchial opening on each side of the neck, and provided with large operculi; mouth beneath, furnished with sharp serrated teeth.

Spatularia reticulata.—THE RETICULATED SPATULARIA.

Plate LXXV. fig. 8.

Head and snout nearly as long as the body and tail, and covered with reticulated striæ; body sub-cylindrical, tapering to the tail; lateral lines conspicuous; dorsal fin near the tail, which is luniform.

SUB-CLASS II.—OSSEOUS FISHES.

ORDER IV.—PLECTOGNATHI.

Bones fibrous; upper jaw formed by the intermaxillary bone, which is immoveably attached upon the side of the maxillary bone; palatine arch adhering to the cranium; branchial cleft simple.

TRIBE I.—GYMNODONTES.

Genus 1.—DIADON.—*Linnaeus.*

Generic Character.—Jaws without central divisions, formed of an upper and under entire piece, having a rounded portion, transversely furrowed behind the cutting edges; nostrils provided with double fleshy tentaculi; skin entirely covered with thick pointed spines; body capable of inflation like a globe.

Diadon orbicularis.—THE ORBICULAR DIADON.

Plate LXXVI. fig. 1.

Nearly spherical; rufous-brown above, and paler beneath;

covered with strong short broad-based spines. Ten inches long. Inhabits the Tropical seas.

Genus 2.—TETRAODON.—*Linnaeus*.

Generic Character.—Jaws divided in the middle by a suture, formed like four teeth, two above, and two below; skin provided with small spines; body capable of inflation.

Tetraodon lineatus.—THE LINEATED TETRAODON.

Plate LXXVI. fig. 2.

Back and sides longitudinally striped with black and brown; abdomen gray; covered with small spines. Twelve inches long. Inhabits the Mediterranean and American seas.

Genus 3.—CEPHALUS.—*Shaw*.

Generic Character.—Jaws entire; body extremely short, compressed, and abruptly truncated, having the appearance of being all head; skin spineless; incapable of inflation; tail short, vertical, and high; dorsal and anal fins high and sub-acute, uniting with the caudal fin; devoid of a swimming bladder.

Cephalus brevis.—THE SHORT SUN FISH.

Plate LXXVI. fig. 3.

Brown above; sides and abdomen reflecting a gold and silver metallic lustre. Ten feet long. Inhabits the European seas.

TRIBE II.—SCLERODERMI.—*Cuvier*.

Genus 4.—BALISTES.—*Linnaeus*.

Generic Character.—Each jaw furnished with eight teeth set in a single row; body compressed, and covered with hard rhomboidal scales; first dorsal fin provided with three spines, the first the longest, and third greatly smaller and separate; extremity of the pelvis projecting and covered with prickles.

Balistes vetula.—THE OLD WIFE FILE-FISH.

Plate LXXVI. fig. 4.

Yellow-olive above; paler beneath; body broad, thin, and rough. Two feet long. Inhabits the Indian and American seas.

Genus 5.—MONOCANTHUS.—Cuvier.

Generic Character.—Each jaw provided with eight teeth set in a single row; scales of the body very small and scabrous; extremity of the pelvis protruding and spinous.

Genus 6.—ALUTERES.—Cuvier.

Generic Character.—Jaws provided with eight teeth each, set in a single row; body oblong; skin covered with thickly set extremely small granules; a single spine on the first dorsal fin; pelvis not protruding.

Aluteres monoceros.—THE ONE-HORNED ALUTERES.

Plate LXXVI, fig. 5.

Ash-coloured, with irregular brown undulated patches. One foot long. Inhabits the Eastern and American seas.

Genus 7.—TRIA CANTHUS.—Cuvier.

Generic Character.—Jaws with eight teeth in each; ventral fin composed of one large spinous ray; first dorsal fin having one large spine and three or four smaller ones; skin beset with dense small scales; tail elongated.

Genus 8.—OSTRACION.—Linnæus.

Generic Character.—Head truncated, which, with the body, are covered with osseous plates; jaws provided with ten or twelve conical teeth; with pelvis bones or ventral fins; branchial fins with a cutaneous lobe, but having a six-rayed operculum within; having single dorsal and anal fins.

Ostracion cornutus.—THE HORNED TRUNK-FISH.

Plate LXXVI, fig. 6.

Quadrangular; yellow-fawn colour; deeper on the abdomen; head with two horizontal horns; and two curved round horns pointing backward, placed on each side of the anal fin. Ten inches long. Inhabits the Indian seas.

ORDER V.—LOPHOBRANCHII.

Jaws entire; branchiæ in the form of small round tufts, disposed in pairs along the branchial arches.

Genus 1.—SYNGNATHUS.—Linnæus.

Generic Character.—Body very long, slender; snout tubiform and greatly produced, nearly equally thick throughout; mouth at the extremity, which is cylindrical and somewhat vertical; divested of ventral fins.

Syngnathus acus.—THE GREAT PIPE FISH.

Plate LXXVI. fig. 7.

Yellowish-brown, varied with alternate zones of a deeper or olive-brown; laminae radiated. Fifteen inches long. Inhabits the European seas.

Genus 2.—HIPPOCAMPUS.—Cuvier.

Generic Character.—Head provided with a tubular snout; trunk of the body compressed; back more elevated than the tail; junctions of the scales ridged, and the projecting angles spinous; without ventral fins; branchial opening on the neck.

Hippocampus foliatus.—THE AUSTRALIAN HIPPOCAMPUS.

Plate LXXVI. fig. 8.

Body somewhat heptagonal, with foliated appendages on the head, neck, back, tail, and breast; fawn-coloured, speckled with grayish-white; fins soft and transparent. Ten inches long. Inhabits the Australian coast.

Genus 3.—SOLENOTOMUS.—Lacepede.

Generic Character.—Jaws tubular, elongated, and narrow; mouth placed at the point of the snout; ventral fins large, placed behind the pectorals, and united into a kind of apron on the abdomen; first dorsal fin elevated, and placed high, near the nape; the second at the origin of the tail; caudal fin large, pointed; branchial openings close to the throat.

Genus 4.—PEGASUS.—Linnæus.

Generic Character.—Snout greatly elongated and depressed,

with the mouth placed under its base ; body broad and depressed, covered with plates ; branchial openings situated on the side, with two ventral ones behind them ; pectoral fins very large ; dorsal and anal fins placed opposite to each other.

Pegasus Draco.—THE DRAGON PEGASUS.

Plate LXXVI. fig. 9.

Breast somewhat quadrangular, with several radiated bony plates ; each side of the abdomen with a lengthened cirrus ; tail long, narrow, enveloped in a case of eight scaly annulations ; pectoral fins large, with the margins scalloped. Four inches long. Inhabits the Indian seas.

ORDER VI.

MALACOPTERYGII ABDOMINALIS.

With a bony skeleton ; jaws complete ; pectenated branchiæ ; rays of the fins soft, with the exception of the first rays of the dorsal or pectoral fins, which are sometimes hard ; ventral fins placed far behind on the abdomen.

FAMILY I.—SALMONIDES.

Genus 1.—SALMO.—*Cuvier*.

Generic Character.—The upper jaw formed principally by the maxillary bones ; mouth large, provided with teeth ; ventral fins opposite the centre of the first dorsal one, and the adipose fin placed opposite the anal one ; branchial membrane having more than eight rays.

Genus 2. OSMERUS.—*Artedi*.

Generic Character.—Mouth placed at the extremity of the snout ; two irregular rows of teeth in each palatine bone ; head compressed ; scales very smooth, hardly perceptible ; the two dorsal fins and second adipose divested of rays, the first more remote from the head than the central fins ; branchial membrane with eight rays.

Genus 3.—COREGONUS.—Artedi.

Generic Character.—Head compressed ; mouth situated at the point of the snout ; teeth very minute ; palate, tongue, and lower jaw frequently devoid of them ; scales large ; two dorsal fins, the second one adipose and destitute of rays ; branchial membrane with seven or eight rays.

Genus 4.—ARGENTINA.—Linnæus.

Generic Character.—Mouth small, depressed ; tongue provided with hooked teeth, and a transverse row of smaller ones on the vomer ; branchial membrane with six rays.

Genus 5.—CURIMATA.—Cuvier.

Generic Character.—Head depressed ; mouth small, placed at the extremity of the snout ; teeth various ; first dorsal fin above the ventrals, the second adipose and destitute of rays ; four rays on the branchial membrane.

Genus 6.—ANASTOMUS.—Cuvier.

Generic Character.—Head compressed ; mouth small, terminal ; a single row of small teeth above and below ; the lower jaw turned up in front of the upper one ; branchial membrane with four rays

Genus 7.—SERRASALMUS.—Lacepede.

Generic Character.—Teeth triangular, edged, dentated, and arranged in a single row in the intermaxillaries and lower jaw ; branchial membrane with four rays ; body compressed ; back high ; venter produced.

***Serrasalmus rhombeus.*—THE RHOMBIC SALMON.**

Plate LXXVIII. fig. 7.

Dull-red above, with some irregular dusky spots ; sides and abdomen silvery-white, the latter carinated and serrated ; tail luniform, with a black fillet at its edge ; a three-spiked spine placed before the dorsal fin. Inhabits the rivers of Surinam.

Genus 8.—PIABUCUS.—Cuvier.

Generic Character.—Head small ; mouth with a small open-

ing; teeth pointed and serrated; body elongated; abdomen carinated; anal fin very long; first dorsal fin opposite the anal one; branchial membrane provided with four rays.

Genus 9.—TETRAGONOPTERUS.—*Artedi.*

Generic Character.—Mouth small, with two rows of serrated triangular teeth in the upper jaw; body compressed; back produced; abdomen deep, but not carinated; anal fin long.

Genus 10.—MYLETES.—*Cuvier.*

Generic Character.—Mouth small, with two rows of intermaxillary teeth, and one row in the under jaw with two remote teeth behind; all the teeth are short, triangular, and rounded on the edges, the upper surface hollowed; tongue and palate smooth.

Genus 11.—HYDROCYNUS.—*Cuvier.*

Generic Character.—Front of the snout formed by the intermaxillary bones; maxillary bones, beginning near the eyes, or before them; both jaws furnished with conical teeth; tongue and vomer smooth; body compressed.

Genus 12.—CITHARINUS.—*Cuvier.*

Generic Character.—Mouth depressed, situated at the point of the snout; the intermaxillary bones forming the upper margin; the maxillary small, destitute of teeth; tongue and palate smooth; adipose fin scaly; the caudal fin nearly covered with scales.

Genus 13.—SAURUS.—*Cuvier.*

Generic Character.—Snout short; mouth opening beyond the eyes; intermaxillary bones forming the margin of the upper jaw; both jaws provided with numerous pointed teeth, as well as the palate and tongue, but the vomer destitute of teeth; branchial membrane having from nine to fifteen rays; first dorsal fin placed farther back than the line of the ventrals; scales large.

Genus 14.—SCOPELUS.—*Cuvier.*

Generic Character.—Mouth and branchial orifices wide; jaws

with small teeth, intermaxillary bones forming the upper jaw ; tongue and palate smooth ; branchial membrane having nine or ten rays.

Genus 15.—AULOPUS.—Cuvier.

Generic Character.—Jaws widely cleft ; upper margin formed of the intermaxillary bones ; both jaws and palate provided with densely set fillets of teeth ; maxillaries toothless ; ventral fins placed under the pectorals, having their external rays furcated and thickened ; branchial membranes with twelve rays ; scales ciliated.

Genus 16.—GASTEROPELECUS.—Bloch.

Generic Character.—Mouth bent upwards ; upper jaw with conical teeth, under jaw having edged and dentated teeth ; belly compressed, and projecting ; ventral fins small, placed far back ; first dorsal fin over the anal one.

Genus 17.—STERNOPTIX.—Hermann.

Generic Character.—Mouth directed upwards ; body compressed, vertically produced, and destitute of scales ; abdomen carinated and bent up in front ; without ventral fins, but a plaited membrane in their stead, under the pectoral fins, close to the ridge ; dorsal fins placed in the middle of the back, and small, having a strong spine in front.

TRIBE II.—CLUPEÆ.

Genus 18.—CLUPEA.—Cuvier.

Generic Character.—Intermaxillary bones arched before, and narrow, separated into many pieces, and longitudinally divided ; mouth partly provided with teeth, some species are entirely divested of them ; venter compressed, having a serrated, carinated ridge, with one dorsal fin above the ventral ones.

Genus 19.—MEGALOPS.—Lacépède.

Generic Character.—Head with very large eyes ; branchial membrane with 24 rays, sometimes more ; last ray of the dorsal fin long and filamentary.

Genus 20.—ENGRAULIS.—Cuvier.

Generic Character.—Upper jaw longer than the lower one ; the nasal and ethmoid bones forming a projection, beneath which are attached the intermaxillary bones ; maxillaries very long and straight ; mouth wide ; both jaws provided with teeth ; the branchial orifices large.

Engraulis encrasicolus.—THE ANCHOVY.

Plate LXXVII, fig. 4.

Back dusky brown ; sides and belly of a shining silvery hue ; fins short, transparent, the dorsal one opposite the ventral fins ; tail forked. Three inches long. Inhabits the European seas.

Genus 21.—THRISSA.—Cuvier.

Generic Character.—Maxillary bones lengthened into separate points, projecting beyond the lower jaw, and provided with teeth ; anal fin long, and united to the tail fin.

Genus 22.—PRISTIGASTER.—Cuvier.

Generic Character.—Jaws with the intermaxillaries narrowed and arched before, and longitudinally separated into a number of pieces ; body greatly compressed ; venter produced and strongly dentated.

Genus 24.—NOTOPTERUS.—Lacépède.

Generic Character.—The lower jaw with two ridges ; both jaws and palate furnished with slender teeth, and tongue with hooked ones ; operculi and cheeks covered with scales ; venter with a dentated carina ; ventral fins very small, anal fin very long, uniting with the tail fin ; opposite the middle of the anal fin is a soft dorsal one.

Genus 25.—ELOPS.—Linnaeus.

Generic Character.—Edge of the jaws and palate provided with thick set small teeth ; branchial membrane having at least thirty rays ; caudal fin with a flattened spine both above and below.

Genus 26.—CHIROCENTRUS.—Cuvier.

Generic Character.—Jaws with a single row of strong con-

ical teeth ; central ones above and those of the under jaw long ; tongue and branchial arches having minute teeth ; each pectoral fin with a long acute scale above it ; pectoral ray hard.

Genus 27.—ERYTHRINUS.—*Gronovius.*

Generic Character.—Each jaw with a row of conical teeth, central ones longer than the others ; branchial membrane with five rays ; head without scales, orbicular, provided with osseous plates ; body covered with large, nearly circular, scales ; dorsal fin above the ventrals.

Genus 28.—AMIA.—*Linnaeus.*

Generic Character.—Head provided with osseous plates and large scales ; branchial membrane having twelve depressed rays ; nostrils with two cirri near them ; teeth conic in front and flat ones behind.

Genus 29.—SUDIS.—*Cuvier.*

Generic Character.—Head provided with osseous plates, but no scales ; branchial membrane with five rays ; teeth conical ; dorsal and anal fins placed opposite.

Genus 30.—LEPISOSTEUS.—*Lacepede.*

Generic Character.—Both jaws having internally rasp-like teeth, and a row of sharp pointed ones in the margin ; branchiae with three rays on each side, united under the throat by a common membrane.

Genus 31.—POLYPTERUS.—*Geoffroy.*

Generic Character.—Margin of the upper jaw fixed ; both jaws having a row of conical teeth, behind which are a set of rasp-like smaller ones ; cheeks covered by a large plate ; branchial membrane with one flat ray ; body elongated, covered with strong scales ; dorsal fins numerous, each supported by a strong spine ; caudal fin surrounding the tail.

Polypterus Bichir.—THE NILITIC POLYPTERUS.

Plate LXXVIII. fig. 8.

Body deep green, with several spots of black ; some individuals are immaculate ; scales very large. Inhabits the Nile.

TRIBE III.—ESOCES.

Genus 32.—ESOX.—Cuvier.

Generic Character.—Snout elongated, broad, depressed, and obtuse ; sides of the lower jaw with long acute teeth ; the intermaxillaries, palate, vomer, and tongue, thickly studded with minute teeth ; a single dorsal fin opposite the anal one.

Genus 33.—GALAXIAS.—Cuvier.

Generic Character.—Upper jaw formed almost exclusively of the intermaxillary bone ; teeth of medium size, acute ; tongue with several strong hooked teeth ; sides of the head with minute spiracles.

Genus 34.—MICROSTOMA.—Cuvier.

Generic Character.—Snout very short ; lower jaw produced, which with the intermaxillaries is furnished with slender and small teeth ; branchial membrane furnished with three broad depressed rays ; lateral line marked by a row of strong scales.

Genus 35.—STOMIAS.—Cuvier.

Generic Character.—Snout very short ; mouth wide ; teeth long and considerably hooked, those on the tongue small ; operculi thin and membranaceous ; body elongated, narrow ; dorsal fin opposite to the anal one.

Genus 36.—CHAULIODUS.—Schneider.

Generic Character.—Each jaw furnished with two large teeth, which cross over the opposite jaw when the mouth is closed ; dorsal fin placed over the interval, between the pectorals and ventrals, its first ray is elongated and filamentous.

Genus 37.—SALANX.—Cuvier.

Generic Character.—Head depressed ; jaws produced, with a row of hooked teeth ; palate smooth ; operculi reflected downwards ; branchial membrane with four depressed rays.

Genus 38.—BELONE.—Cuvier.

Generic Character. Snout elongated, formed by the inter-

maxillaries and lower jaw ; both jaws with teeth ; body lengthened, a row of large carinated scales on each side.

Belone vulgaris.—THE CHINESE GAR-FISH.

Plate LXXVII. fig. 2.

Bluish-green above ; silvery-white below. Two feet long. Inhabits the European seas.

Genus 39.—SCOMBERESOX.—*Lecepede*.

Generic Character.—Body and tail greatly elongated ; jaws much produced, slender, and narrow ; dorsal fin opposite the anal one ; last ray of both dorsal and anal fins detached, forming spurious fins.

Genus 40.—HEMIRAMPHUS.—*Cuvier*.

Generic Character.—Teeth in both jaws ; the symphysis of the lower jaw forming a lengthened point without teeth.

Genus 41.—EXOCETUS.—*Linnæus*.

Generic Character.—Jaws with long pointed teeth, the pharyngeal bones having flat ones ; head with scales ; branchial membrane with ten rays ; pectoral fins as long as the body.

Exocetus exiliens.—THE MEDITERRANEAN FLYING FISH.

Plate LXXVIII. fig. 3.

Back brown ; silvery-white beneath, covered with large scales ; ventral fins long, placed behind the middle of the abdomen. Fifteen inches long. Inhabits the Mediterranean.

Genus 42.—MORMYRUS.—*Linnæus*.

Generic Character.—Head with a naked skin, which covers the operculi and branchial rays ; mouth small ; teeth slender, those in the intermaxillaries and lower jaw notched ; tongue and vomer with numerous teeth.

TRIBE IV.—CYPRINIDÆ.

Genus 43.—CYPRINUS.—*Cuvier*.

Generic Character.—Tongue and palate without teeth, smooth ;

branchial membrane with three flat rays ; dorsal fin long with its second ray, and the second one of the anal fin dentated.

Cyprinus auratus.—THE GOLDEN CARP.

Plate LXXVIII. fig. 4.

Rich metallic golden-yellow, approaching to scarlet on the upper parts ; silvery below ; fins carmine red ; tail sometimes trifid ; anal fin double. Six inches long. Inhabits the lakes of Southern China.

Genus 44.—BARBUS.—Cuvier.

Generic Character.—Head with four cirri, two at the point, and two at the angles of the upper jaw ; dorsal and anal fins short ; second or third ray of the dorsal fin is represented by a strong spine.

Barbus vulgaris.—THE BARBEL.

Plate LXXVII. fig. 7.

Snout red ; dark silvery gray on the upper parts, and paler below ; scales rounded ; second ray of the dorsal fin strong and serrated ; ventral fins pale reddish-brown, tipped with yellow ; tail forked, of a purple tinge. Eight feet long. Inhabits the rivers of Southern Europe.

Genus 45.—GOBIO.—Cuvier.

Generic Character.—Upper jaw longer than the under one, provided with two cirri ; dorsal and anal fins short.

Genus 46.—TINCA.—Cuvier.

Generic Character.—Jaws with minute cirri ; scales exceedingly small ; dorsal and anal fins short, destitute of spines.

Genus 47.—CIRRHINUS.—Cuvier.

Generic Character.—Cirri placed on the centre of the middle lip ; dorsal fin large.

Genus 48.—ABRAMIS.—Cuvier.

Generic Character.—No spines or cirri ; dorsal fin short, situated behind the ventrals ; with a long anal fin.

Abramis vulgaris.—THE BREAM.

Plate LXXVII. fig. 5.

Olive-green above, paler below ; fins dusky. Two and a half feet long. Inhabits the lakes and rivers of Europe.

Genus 49.—LABEO.—Cuvier.

Generic Character.—Lips fleshy, very thick, without cirri and spines ; dorsal fin long.

Genus 50.—LEUCISCUS.—Klein.

Generic Character.—Without cirri or spines ; dorsal and anal fins short.

Genus 51.—GONORHYNCHUS.—Gronovius.

Generic Character.—Snout produced ; mouth small, destitute of teeth or cirri ; branchial membrane with three rays ; body covered with small scales.

Genus 52.—COBITIS.—Linnaeus.

Generic Character.—Head small ; mouth terminal, without teeth ; furnished with a cirri ; lips formed so as to act as a sucker ; branchial membrane with three rays ; body lengthened, covered with small scales.

Genus 53.—ANABLEPS.—Bloch.

Generic Character.—Snout truncated ; mouth with small teeth in both jaws ; eyes protruding ; iris divided into two portions by transverse bands ; body cylindrical, covered with strong scales.

Anableps tetraphthalmus.—THE FOUR-EYED ANABLEPS.

Plate LXXVIII. fig. 5.

Yellowish-gray, with longitudinal lines on the sides. Ten inches long. Inhabits the rivers of Guiana.

Genus 54.—PÆCILIA.—Schneider.

Generic Character.—Head small ; jaws depressed, slightly cleft, and provided with a single row of very small teeth ; operculi large ; branchial membrane with three rays.

Genus 55.—LEBIAS.—Cuvier.

Generic Character.—Jaws depressed, with a row of dentated teeth ; branchial membrane with five rays.

Genus 56.—CYPRINODON.—Lecepede.

Generic Character.—Both jaws provided with numerous teeth, the anterior row dentated ; branchial membrane with four rays.

TRIBE V.—SILURIDÆ.

Genus 57.—SILURUS.—Artedi.

Generic Character.—Head depressed ; mouth terminal ; teeth in both jaws thickly set ; jaws provided with cirri ; one very short dorsal fin, with no visible spine ; anal fin long ; body covered by a mucous secretion.

Genus 58.—SCHILBE.—Cuvier.

Generic Character.—Head small, depressed ; eyes placed low in the head ; with eight cirri ; body compressed ; dorsal fin with a strong dentated spine.

Genus 59.—SYNODONTIS.—Cuvier.

Generic Character.—Snout narrow ; cirri pinnated ; lower jaw with depressed teeth, hooked laterally, and placed in a flexible pedicle ; frontal bone forming a sort of helmet prolonged to the first dorsal fin ; dorsal and pectoral fins with long spines.

Genus 60.—PIMELODUS.—Cuvier.

Generic Character.—Head depressed ; teeth in both jaws thick set ; upper jaw with a single intermaxillary band ; two dorsal fins, the second one adipose.

Pimelodus Bagarius.—BAGRUS'S PIMELODUS.

Plate LXXVIII. fig. 6

Tail fin divided into two very long pointed lobes ; body opaque, scabrous, variegated with black irregular marks. Six feet long. Inhabits the Ganges.

Genus 61.—BAGRUS.—Cuvier.

Generic Character.—Cranium smooth ; nuchal plate small ;

teeth of the upper jaw arranged in two transverse parallel bands, one of which is intermaxillary, and the other on the vomer ; two dorsal fins, the second one adipose.

Genus 62.—AGENEIORUS.—Lacepede.

Generic Character.—Head depressed, covered with large hard plates ; mouth terminal, destitute of cirri ; two dorsal fins, the second adipose.

Genus 63.—DORAS.—Lacepede.

Generic Character.—Head depressed, covered with large hard plates ; jaws with cirri ; two dorsal fins, the second adipose ; dorsal and pectoral spines strongly dentated ; sides provided with carinated or spinous plates.

Genus 64.—MACROPTERONOTUS.—Lacepede.

Generic Character.—Head broad, depressed, covered with large, flat, hard plates ; mouth terminal ; jaws with eight cirri ; one dorsal fin, which is extended ; skin slimy.

Macropteronotus magur.—THE MAGUR MACROPTERONOTUS.

Plate LXXVIII. fig. 1.

Tail and back fins distinct ; body shaped like the head of a lance ; olive-green above, and dirty yellow below ; the fins are edged with red. Ten inches long. Inhabits the Ganges.

Genus 65.—PLOTOSUS.—Lacepede.

Generic Character.—Head depressed, covered with large hard plates ; lips fleshy and pendulous ; jaws with cirri ; branchial membrane with nine or ten rays ; two dorsal fins, the second one adipose ; the anal and caudal fins united.

Genus 66.—CALLICHTYS.—Linnaeus.

Generic Character.—Head covered with plates ; snout and under parts of the body naked ; jaws with four cirri ; teeth very minute ; sides provided with four rows of scaly plates ; two dorsal fins, the second with one ray.

Genus 67.—MALAPTERURUS.—Lacepede.

Generic Character.—Head depressed, covered with smooth

skin ; mouth terminal ; jaws provided with six cirri ; one adipose dorsal fin, situated near the tail ; skin slimy.

Genus 68.—**PLATYSTACUS.**—*Bloch.*

Generic Character.—Head depressed, with six or eight cirri ; bones of the operculum fixed to the chest ; first ray of the pectoral fins strongly serrated ; one dorsal fin, with the first ray slender ; anal fin very long, extending the whole length of the tail ; tail long and compressed.

Platystacus chaca.—**THE CHACA PLATYSTACUS.**

Plate LXXVIII. fig. 8.

Skin with scattered fleshy projections, ragged on the surface ; clouded with green and black above, and black and yellow beneath ; fins spotted with black ; head much depressed and blunt. Eight inches long. Inhabits the Ganges.

Genus 69.—**HYPOSTOMUS.**—*Lacepede.*

Generic Character.—Mouth situated beneath ; branchial membrane with four rays ; lips extensible, with slight cirri on both sides ; upper parts and tail covered with bony plates ; two dorsal fins, the second small, with a single ray.

Hypostomus flavus.—**THE YELLOW HYPOSTOMUS.**

Plate LXXIX. fig. 1.

Orange-yellow, spotted with brown ; tail with bars of the same colour ; head large, rough with small points. Ten inches long. Inhabits the Indian seas.

ORDER VII.

MALACOPTERYGII SUBRACHIATI.

Jaws entire ; branchiæ pectinated ; ventral fins either before the pectorals, between them, or a little behind.

TRIBE I.—GADITES.

Genus 1.—**MORRHUA.**—*Cuvier.*

Generic Character.—Head compressed ; eyes distant, situated

on the sides of the head ; lower jaw with a cirrus at its point ; body elongated, somewhat compressed ; having three dorsal and two anal fins ; ventral fins acute.

Genus 2.—MERLANGUS.—Cuvier.

Generic Character.—Destitute of cirri on the lower jaw ; having three dorsal and two anal fins.

Genus 3.—MERLUCCIUS.—Cuvier.

Generic Character.—Without cirri ; having one anal and two dorsal fins.

Genus 4.—LOTA.—Cuvier.

Generic Character.—Provided with cirri, more or less numerous ; one anal and two dorsal fins ; second dorsal fin and anal fins long.

Genus 5.—MUSTELA.—Cuvier.

Generic Character.—Having the dorsal fin very slightly elevated, and merely rudimentary.

Genus 6.—BROSMUS.—Cuvier.

Generic Character.—Nape provided with a furrow, extending to the dorsal fin, which commences at the shoulder and terminates near the tail ; ventral fins thick and fleshy, ending in four soft cirri.

Brosmus vulgaris.—THE TORSK.

Plate LXXIX. fig. 2.

Back and sides yellowish-gray, softening into white on the abdomen ; head small, blackish-brown ; tail rounded. Three feet long. Inhabits the North seas.

Genus 7.—PHYCIS.—Artedi.

Generic Character.—Head thick, slightly obtuse ; chin with a cirrus ; ventral fins consisting of one ray, frequently furcated ; two dorsal fins, the second being the longest.

Genus 8.—RANICEPS.—Cuvier.

Generic Character.—Head very broad and depressed ; first

dorsal fin very small, and nearly lost in the thickness of the skin; ventral fins with the two first rays elongated.

Genus 9.—LEPIDOLEPRUS.—*Risso.*

Generic Character.—Teeth very short and small; head and body with rugose carinated scales; two dorsal fins, the first short and erect, the second very long, which, together with the anal fin, unite into a point at the tail.

Genus 10.—MACROURUS.—*Bloch.*

Generic Character.—Teeth small, set in many rows; lower jaw with a cirrus; scales carinated and rough; two dorsal fins, the first strong and elevated, the second elongated, and forming a point with the anal fin at the tail.

Macrourus rupestris.—THE LONG-TAILED MACROURUS.

Plate LXXIX. fig. 3.

Silver-gray above, and nearly white beneath; body tapering gradually to a long and pointed tail. Three feet long. Inhabits the North seas.

TRIBE II.—PLEURONESTES.

Genus 11.—PLATESSA.—*Cuvier.*

Generic Character.—Each jaw provided with a row of obtuse cutting teeth; pharyngeal bones with thick set small teeth; eyes on the right side; dorsal fin placed forward above the upper eye; body rhomboidal, and much depressed; between the anal fin and tail a vacant space.

Platessa carnaria.—THE FLESH-COLOURED FLUKE.

Plate LXXIX. fig. 4.

Irides orange, nictitating membrane green; body smooth, covered with very small smooth adherent scales, flesh-coloured, with regular deep rose-coloured distinct spots; under side smooth, convex, silvery-white. Five and a half inches long. Inhabits the Frith of Forth.

Genus 12.—HIPPOGLOSSUS.—*Cuvier.*

Generic Character.—Jaws and pharynx provided with slen-

der acute teeth ; body oblong-ovate, compressed ; an interval between the dorsal and anal fins, and the tail.

Genus 13.—RHOMBUS.—Cuvier.

Generic Character.—Jaws and pharynx provided with numerous slender acute teeth ; eyes for the most part sinistral ; dorsal fin taking its rise at the margin of the upper jaw, which, together with the anal fin, terminates near the tail.

Genus 14.—SOLEA.—Cuvier.

Generic Character.—Jaws destitute of teeth on the upper side, mouth twisted to the side opposite the eyes ; body oblong ; dorsal fin emanating from the side of the mouth, and terminating at the tail, where the anal fin also ends ; lateral line straight.

Genus 15.—MONOCHIRUS.—Cuvier.

Generic Character.—Having a very small pectoral fin on the side next the eyes ; that on the opposite side merely rudimentary.

Genus 16.—ACHIRUS.—Lacepede.

Generic Character.—Head, body, and tail, greatly compressed ; eyes both on the same side of the head ; destitute of pectoral fins.

TRIBE III.—DISCOBOLI.

Genus 17.—LEPADOGASTER.—Gouan.

Generic Character.—Head broad and depressed ; snout produced and extensible ; body smooth, destitute of scales ; having double pectoral fins, united in the form of a disc under the throat by a transverse membrane.

Genus 18.—GOBIESOX.—Lacepede.

Generic Character.—Head thick, broader than the body ; two unconnected pectoral fins, one very short ; dorsal fin placed over the extremity of the tail.

Gobiesox bimaculatus.—THE TWO-SPOT-SUCKER.

Plate LXXIX. fig. 5.

Body taper, rose-coloured, with small white spots, and a

black spot on each side of the abdomen. Two inches long. Inhabits the European seas.

Genus 19.—CYCLOPTERUS.—Linnaeus.

Generic Character.—Mouth very wide; teeth in both jaws very small and pointed; branchial membrane with six rays; pectoral fins large; ventral fins united in the form of an oval and concave disc; skin without scales, slimy.

Cyclopterus lumpus.—THE LUMP-SUCKER.

Plate LXXIX. fig. 6.

Skin tuberculated; back blackish-brown, elevated; belly depressed and red; both sides with three rows of large conical tubercles. Eighteen inches long. Inhabits the North seas.

Genus 20.—LIPARIS.—Artdi.

Generic Character.—Body lengthened, compressed, smooth; with long dorsal and anal fins.

Liparis Montagu.—THE DIMINUTIVE LUMP-SUCKER.

Plate LXXIX. fig. 7.

Body brownish-purple above, and pale reddish-white beneath; dorsal and caudal fins separate. Two inches long. Inhabits the British seas.

Genus 21.—ECHENEIS.—Linnaeus.

Generic Character.—Snout somewhat obtuse; crown depressed, with a disc composed of transverse plates directed obliquely backwards; and dentated or spinous on their posterior margin; body elongated, and covered with small scales; having only one soft dorsal fin, placed far back.

Echeneis Remora.—THE REMORA.

Plate LXXIX. fig. 8.

Umber-brown above, paler below; under jaw projecting beyond the upper one; tail semilunar. Eighteen inches long. Inhabits the Mediterranean.

Genus 22.—OPHICEPHALUS.—Bloch.

Generic Character.—Head obtuse, depressed; snout short;

teeth rasp-like ; branchial membrane with five rays ; body and head provided with large scales ; those on the venter placed irregularly ; sides beset with larger, somewhat inflated scales.

Ophicephalus punctatus.—THE PUNCTATED OPHICEPHALUS.

Plate LXXIX, fig. 9.

Brownish-black above, paler beneath ; with numerous black dots ; dorsal and abdominal fins long. Ten inches long. Inhabits the lakes in India.

ORDER VIII.

MALACOPTERYGII APODES.

Body lengthened, with a thick skin, and having no ventral fins.

Genus 1.—ANGUILLA.—*Cuvier*.

Generic Character.—With lateral branchial openings placed beneath the pectoral fins ; body elongated, round, and smooth ; dorsal and anal fins united, and forming a pointed caudal fin.

Genus 2.—CONGER.—*Cuvier*.

Generic Character.—Upper jaw projecting beyond the under one ; dorsal fin rising near the pectoral fins, or above them.

Conger vulgaris.—THE CONGER EEL.

Plate LXXIX, fig. 10.

Blackish-brown above, and silvery-white beneath ; dorsal and anal fins having black edges. Six feet long. Inhabits the Northern seas.

Genus 3.—OPHISURUS.—*Lacépède*.

Generic Character.—Head small, with tubular nostrils ; body and tail cylindrical, and greatly elongated ; anal and dorsal fins long ; destitute of caudal fins.

Genus 4.—MURAENA.—*Thunb.*

Generic Character.—Nostrils tubular ; branchiæ opening by

small lateral holes ; branchial rays so small, that they are hardly perceptible ; destitute of pectoral fins.

Muraena catenata.—THE CHAIN-STRIPED MURÆNA.

Plate LXXIX. fig. 11.

Brown ; with interrupted, white, transverse, chain-like bands ; thickly freckled with brown. Fifteen inches long. Inhabits Surinam.

Genus 5.—SPHAGEBRANCHUS.—*Bloch*.

Generic Character.—Head terminating in an acute point ; branchial openings placed under the throat, and approaching.

Genus 6.—APTERICHTHUS.—*Dumeril*.

Generic Character.—Head with orbicular pores ; eyes imperceptible ; snout acute and depressed ; mouth small ; teeth subulate, pointed, and recurved ; anterior teeth of the upper jaw longer than the others ; branchial openings under the neck ; body very much elongated, nearly cylindrical, and extremely slender ; destitute of fins and scales.

Genus 7.—SYNBRANCHUS.—*Bloch*.

Generic Character.—Head large ; snout rounded and obtuse ; teeth blunt ; branchiæ, having a single opening under the throat, with six rays ; destitute of pectoral fins, and the ventral ones almost entirely adipose.

Genus 8.—ALABES.—*Cuvier*.

Generic Character.—Teeth acute ; throat with a common opening for the branchiæ ; branchial operculum furnished with three rays ; pectoral fins with a small concave disc between them.

Genus 9.—GYMNOTUS.—*Linnaeus*.

Generic Character.—Branchial openings partly shut by a membrane, opening in front of the pectoral fins ; anal fin nearly the whole length of the body ; anus placed far forward ; destitute of a dorsal fin ; and no visible scales.

Gymnotus electricus.—THE ELECTRICAL GYMNOTUS.

Plate LXXIX. fig. 12.

Body elongated; dusky above, and paler below; head and tail obtuse. Six feet long. Inhabits the rivers of South America.

Genus 10.—CARPUS.—Cuvier.

Generic Character.—Body compressed; back and abdomen produced, tapering suddenly to the tail; covered with large scales.

Genus 11.—STERNARCHUS.—Schneider.

Generic Character.—Head oblong, depressed, destitute of scales; body scaly; middle of the back provided with a soft fleshy filament situated in a furrow; anal fin terminating near the tail.

Genus 12.—LEPTOCEPHALUS.—Pennant.

Generic Character.—Head small; branchial aperture small and transverse; body compressed like a riband; dorsal, caudal, and anal fins united.

Leptocephalus Morrisii.—MORRIS'S LEPTOCEPHALUS.

Plate LXXX. fig. 1.

Pale-grayish yellow, semipellucid; margins of back and belly with small black spots. Six inches long. Inhabits the coasts of England.

Genus 13.—OPHIDIUM.—Linnæus.

Generic Character.—Branchial operculum large; rays of the membrane short; and two small bifid cirri under the throat; body elongated, compressed, with small irregular scales; dorsal, anal, and caudal fins united; tail acute.

Genus 14.—PIERASPER.—Guvier.

Generic Character.—Head short, depressed; without cirri; body oblong, slender; dorsal fin extremely indistinct, resembling a fold of skin.

Genus 15.—AMMODYTES.—Linnæus.

Generic Character.—Snout acute; upper jaw capable of ex-

tension, lower jaw longest; body slender and elongated; dorsal, anal, and caudal fins separate; destitute of a swimming-vessel.

ORDER IX.—ACANTHOPTERYGII.

The first rays of the dorsal, ventral, and anal fins supported by a simple spinous process.

TRIBE I.—TÆNIOIDES.

SECTION I.—Snout short.

Genus 1.—CEPOLA.—*Linnaeus*.

Generic Character.—Upper jaw short, the lower one retrousse; teeth strong and sharp; body lengthened and compressed; with distinct dorsal, anal, and caudal fins.

Cepola Tænia.—THE BAND FISH.

Plate LXXX. fig. 2.

Dusky above, with some remote reddish spots along the sides; and shining silvery waved-bands beneath. Four feet long. Inhabits the Mediterranean.

Genus 2.—LOPHOTES.—*Giorna*.

Generic Character.—Head short, having an elevated osseous crest, surmounted by a strong spinous ray, margined behind by a membrane; branchial membrane with six rays; back having a narrow fin, with single rays extending nearly its whole length; caudal fin distinct, anal fin very short, pectoral fins with a spinous ray in front of each, ventral fins very small.

Genus 3.—REGALECUS.—*Ascanius*.

Generic Character.—Pectoral and first dorsal fin small, the latter with simple rays, the second extending nearly the length of the body; destitute of caudal and anal fins; the ventral breast fins represented by long simple filaments.

Genus 4.—GYMNETRUS.—*Bloch*.

Generic Character.—Upper jaw capable of much extension; teeth minute; one dorsal fin, no anal one, caudal fin distinct.

Genus 5.—**TRACHYPTERUS.**—*Gouan.*

Generic Character.—Dorsal fin very much elongated, supported by round rays, the anterior ones toothed; without an anal fin; lateral line spinous; tail strongly serrated beneath.

Genus 6.—**GYMNOGASTER.**—*Brumich.*

Generic Character.—Teeth sharp and acute; provided with one long dorsal fin; pectoral fins small; no anal or ventral fins.

Genus 7.—**TRICHIURUS.**—*Linnaeus.*

Generic Character.—Jaws acute, with long curved teeth; body elongated, compressed, sabre-shaped; dorsal fin the whole length of the body; destitute of ventral or anal fins; tail with a filamentary termination.

Genus 8.—**LEPIDOPUS.**—*Gouan.*

Generic Character.—Jaws pointed with acute teeth; body lengthened and compressed; dorsal fin long; with distinct caudal and anal fins; ventral fins represented by two acute moveable scales.

Genus 9.—**STYLEPHORUS.**—*Shaw.*

Generic Character.—Snout elongated, retrouse; retractile towards the head by means of a membrane; eyes situated on peduncles; body much elongated, and compressed; pectoral fins small; destitute of ventral or anal fins; tail terminated with a filamentous process, longer than the body.

Stylephorus chordatus.—**THE CORDATED STYLEPHORUS.**

Plate LXXX. fig. 3.

Silvery, mottled with reddish-brown. Two feet long, exclusive of the filament. Inhabits the gulf of Mexico.

TRIBE II.—**GOBIOIDES.***Genus 10.*—**BLENNIUS.**—*Linnaeus.*

Generic Character.—Head obtuse; snout short; teeth long, equal, thickly set, and placed in a single row in each jaw; head provided with fimbriated appendages; body elongated, com-

pressed, with one dorsal fin, consisting of simple flexible rays ; ventral fins placed in front of the pectorals.

Blennius ocellaris.—THE OCELLATED BLENNY.

Plate LXXX. fig. 4.

Dark blue-green on the back, and paler below ; marked with several clouds on the upper parts ; dorsal fin having a round dusky spot, surrounded by white.

Genus 11.—PHOLIS.—*Artedi*.

Generic Character.—Head obtuse ; without crest or appendage ; lips thick ; nostrils orbicular, terminating in cylinders ; body lengthened ; dorsal fin long, waved, having the appearance of being cleft ; ventral fins with two rays.

Genus 12.—SALARIAS.—*Cuvier*.

Generic Character.—Head compressed above, and transversely broad below ; lips tumid and fleshy ; teeth in one row exceedingly numerous, slender, and laterally compressed, hooked at their points.

Genus 13.—CLINUS.—*Cuvier*.

Generic Character.—Head somewhat obtuse ; teeth short and acute, placed in many rows, of which the first is the longest ; body elongated, compressed ; dorsal fin long.

Genus 14.—GUNNELLUS.—*Cuvier*.

Generic Character.—Teeth short, acute, placed in many rows ; body long, compressed ; dorsal fin long, of equal breadth, having all its rays spinous ; ventral fins small, frequently with a single ray only.

Genus 15.—OPISTOGNATHUS.—*Cuvier*.

Generic Character.—Snout short ; maxillary bones very long, and prolonged behind ; body elongated, compressed ; ventral fins with three rays, which are situated immediately under the pectorals.

Genus 16.—ANARCHICAS.—*Linnaeus*.

Generic Character.—Head thick, obtuse ; anterior teeth long

and conical ; the other teeth small and enamelled, placed on the summits of bony tubercles ; branchial membrane with six rays ; body long, glabrous.

Anarchicas lupas.—THE WOLF-FISH.

Plate LXXX. fig. 5.

Ash-coloured above ; yellowish-white beneath ; dorsal fin the whole length of the back ; tail small, somewhat round. Two and a half feet long. Inhabits the North seas.

Genus 17.—GOBIUS.—*Lacepede*.

Generic Character.—Head somewhat orbicular, of medium size ; cheeks tumid ; branchial membrane with four rays ; body elongated ; having two dorsal fins, the posterior one long ; ventral fins placed on the thorax, united towards their base into a hollow disc.

Gobius shangua.—THE SHANGUA GOBIUS.

Plate LXXX. fig. 6.

Body slippery, olive-green, clouded, with black dots above ; abdomen white ; tail fin with beautiful square spots of black ; eyes small, protuberant, and approaching closely. Six inches long. Inhabits the estuaries of the river Ganges.

Genus 18.—GOBIOIDES.—*Lacepede*.

Generic Character.—Head small ; body elongated ; ventral fins united and placed high on the thorax ; one dorsal fin only.

Genus 19.—TÆNIOIDES.—*Lacepede*.

Generic Character.—With cirri on the upper lip ; eyes excessively small ; body greatly elongated and compressed ; pectoral fins with numerous rays and shaped in the form of a disc ; destitute of a caudal fin.

Genus 20.—PERIOPHTHALMUS.—*Schneider*.

Generic Character.—Head covered with scales ; eyes approximate with an eyelid at their inferior margin ; branchial openings narrow ; pectoral fins covered with scales, more than half their length.

Genus 21.—ELEOTRIS.—Cuvier.

Generic Character.—Head obtuse, somewhat depressed; eyes considerably apart; branchial membrane with six rays; first dorsal fin with elastic rays; an appendage behind the anal region.

Genus 22.—SILLAGO.—Cuvier.

Generic Character.—Head covered with scales; snout somewhat elongated; mouth protractile, with fleshy lips; teeth small, numerous, exterior row considerably longer than the rest; two dorsal fins, the first short, elevated, and having flexible rays; the second one long and placed low; operculi provided with a minute spine.

Genus 23.—CALLIONYMUS.—Linnaeus.

Generic Character.—Head oblong, depressed, thicker than the body; eyes placed vertically and approximated; branchial openings situated on each side of the neck; ventral fins placed under the throat, and longer than the pectorals; first dorsal fin sustained by setaceous rays; body destitute of scales.

Callionymus Lyra.—THE GEMMEOUS DRAGONET.

Plate LXXX. fig. 7.

Body rounded, smooth, with brilliant iridescent colours, changing from blue to yellow and silvery-white; first dorsal fin lyre-shaped, the first ray arcuated and extending nearly to the tail; last rays of the dorsal and anal fins longer than the others. Twelve inches long. Inhabits the European seas.

Genus 24.—COMEPHORUS.—Lacepede.

Generic Character.—Head and mouth large; snout broad and depressed; branchial membrane with seven rays; body elongated, compressed, with very long pectoral fins; two dorsal fins, but destitute of ventrals.

TRIBE III.—LABROIDES.

Genus 25.—LABRUS.—Cuvier.

Generic Character.—Lips double, fleshy; with conical maxillary teeth, and blunt pharyngeal ones; cheeks and operculi

covered with scales, but without dentations and spines ; lateral line nearly straight.

Genus 26.—JULIS.—Cuvier.

Generic Character.—Head smooth ; lips thick and fleshy ; with front maxillary teeth ; the pharyngeal ones blunt ; body oblong ; lateral line strongly curved towards the tail.

Julis micolepidotus.—THE MICOLEPIDOTUS JULIS.

Plate LXXX. fig. 8.

Head and back of a yellow-brown ; sides and belly silvery ; scales minute, covering the operculi ; fins pale brown. Twelve inches long.

Genus 27.—CRENILABRUS.—Cuvier.

Generic Character.—Cheeks and operculi provided with scales ; lips thick and fleshy ; front teeth conical, somewhat acute ; pharyngeal teeth blunt ; margins of the pre-operculi dentated.

Crenilabrus gibbus.—THE GIBBOUS WRASSE.

Plate LXXX. fig. 9.

Back arcuated, carinated, sloping abruptly to the snout ; sides spotted with blue and orange. Eight inches long. Inhabits the British seas.

Genus 28.—CORICUS.—Cuvier.

Generic Character.—Cheeks and operculi provided with scales ; lips thick and fleshy ; mouth protractile ; front teeth conical and pharyngeal ; cheek teeth blunt ; operculi dentated ; body oblong.

Genus 29.—CHEILINUS.—Lacepede.

Generic Character.—Head covered with scales ; front teeth conical, the pharyngeal ones blunt ; upper lip extensible ; branchial operculi destitute of spines or dentations ; lateral line interrupted opposite the dorsal fin.

Cheilinus fasciatus.—THE BANDED GILT-HEAD

Plate LXXX. fig. 10.

Body broad, compressed ; yellow, with six brown transverse fillets ; lateral line interrupted.

Genus 30.—EPIBULUS.—Cuvier.

Generic Character.—Mouth capable of great extension; each jaw furnished with two conical front teeth, and small pharyngeal ones; body and head covered with scales, the lower row resting on the anal and caudal fins; lateral line interrupted.

Genus 31.—GOMPHOSUS.—Lacepede.

Generic Character.—Head smooth; jaw produced into a tubular snout; front teeth large, conical; those on the pharynx obtuse; body oblong.

Genus 32.—NOVACULA.—Cuvier.

Generic Character.—Forehead nearly vertical; jaws with one row of conical teeth, middle ones longest; the palate provided with hemispherical teeth; body covered with large scales; lateral line interrupted.

Genus 33.—CHROMIS.—Cuvier.

Generic Character.—Lips long and fleshy; mouth protractile, with numerous thick set teeth, equal in both jaws and larynx; having filamentous vertical fins; lateral line interrupted.

Chromis Surinamensis.—THE SURINAM GILT-HEAD.

Plate LXXXI. fig. 1.

Yellow, transversely spotted with red; each side with five large black spots; tail lightly semilunar. Inhabits the South American seas.

Genus 34.—SCARUS.—Linnaeus.

Generic Character.—Lips fleshy; jaws convex, rounded, with scale-shaped teeth on their margins and anterior surface; two pharyngeal plates, one above and another below, provided with laminar teeth; lateral line interrupted, and one dorsal fin only.

Scarus viridis.—THE GREEN SCARUS.

Plate LXXXI. fig. 2.

Yellowish or grass green; bordered with sea green; caudal fin straight. Twelve inches long. Inhabits the Chinese seas.

Genus 35.—LABRAX.—Pallas.

Generic Character.—Head small; lips fleshy; teeth minute, conical, and unequal in size; body with ciliated scales, and rows of lateral pores; dorsal fin consisting of slender spines, elongated on the back.

TRIBE IV.—PERCOIDES.

SECTION I.—Dorsal fin continuous.

Genus 36.—SMARIS.—Cuvier.

Generic Character.—Jaws extensible, somewhat tubular; with one row of slender pointed teeth, and a row of finer ones behind; body narrow.

Genus 37.—BOOPS.—Cuvier.

Generic Character.—Jaws slightly extensible, with one row of edged teeth, sometimes notched; body oblong, compressed, with pretty large scales.

Boops chrysurus.—THE GOLD-TAILED SPARUS.

Plate LXXXI. fig. 3.

Back deep rose-coloured, paler below; a longitudinal golden-yellow stripe extends from the gills to the tail; a second near the base of the abdomen; tail much forked, golden-yellow. Thirteen inches long. Inhabits the South American seas.

Genus 38.—SARGUS.—Cuvier.

Generic Character.—Jaws somewhat extensible, provided on each side with round molar-shaped teeth; having incisory teeth in front, similar to those of man.

Genus 39.—DAURADA.—Cuvier.

Generic Character.—Head compressed; jaws somewhat extensible; with a row of from four to six conical teeth; the others are flat.

Genus 40.—PAGRUS.—Cuvier.

Generic Character.—Head compressed; teeth small, numerous set in little packets; the first row being longer than the others.

Genus 41.—DENTEX.—Cuvier.

Generic Character.—Jaws with long hooked teeth in front, sides with conical teeth; small and numerous teeth placed behind the hooked ones.

Genus 42.—LUTIANUS.—Cuvier.

Generic Character.—With a dentated pre-operculum, and the operculum destitute of spines.

Genus 43.—DIACOPE.—Cuvier.

Generic Character.—Pre-operculum provided with a large notch for the articulation of the teroperculum.

Genus 44.—CIRRHITUS.—Lacepede.

Generic Character.—Branchial membrane with seven rays, the last remote from the others; pre-operculum with five dentations; lower rays of pectoral fins stronger and longer than the others, and unconnected at the extremity.

Genus 45.—BODIANUS.—Cuvier.

Generic Character.—No visible dentations on the pre-operculum; operculum spined.

Genus 46.—SERRANUS.—Cuvier.

Generic Character.—Head with scales; jaws with small teeth; those of the upper jaw longest; operculum spinous; body elongated; dorsal fin long and partly spinous.

Serranus tigrinus.—THE SPOTTED HOLOCENTRUS.

Plate LX. fig. 6.

Back brown; sides blue; abdomen silvery, with numerous black bands and spots; rounded in the fins. Twelve inches long. Inhabits the Indian seas.

Genus 47.—PLECTROPOMUS.—Cuvier.

Generic Character.—Operculi furnished with large spines on their base, pointing forward.

Genus 48.—CANTHARUS.—Cuvier.

Generic Character.—Mouth narrow; snout somewhat pro-

duced; teeth numerous, thick set; operculi smooth; body oval.

Genus 49.—CICHLA.—Schneider.

Generic Character.—Mouth wide, protractile; teeth numerous, small, and thick set; operculi smooth.

Genus 50.—PRISTOPOMUS.—Cuvier.

Generic Character.—Mouth contracted, with numerous, small, thick set teeth; body deep, compressed, with large scales.

Genus 51.—SCOLOPSIS.—Cuvier.

Generic Character.—Mouth small; teeth numerous, small, and thick set; margin of the pre-operculum dentated; body compressed, deep; the suborbital bone dentated and spinous behind.

Genus 52.—DIAGRAMMA.—Cuvier.

Generic Character.—Head orbicular; mouth contracted; teeth small, numerous, and thick set; pre-operculum somewhat dentated, with six pores under the lower jaw; body oblong.

Genus 53.—CHEILODACTYLUS.—Lacépède.

Generic Character.—With a double and extensible upper lip; pre-operculum smooth; teeth small and thick set; body and tail compressed; last ray of the pectoral fin elongated beyond the uniting membrane; one dorsal fin.

Genus 54.—MICROPTERUS.—Lacépède.

Generic Character.—Mouth cleft; teeth thick set; operculum with a flat spine; last soft rays of the dorsal fin detached into a small rudimentary fin.

Genus 55.—GRAMMISTES.—Cuvier.

Generic Character.—Mouth cleft; teeth numerous, thick set, pre-operculi and operculi, with two or three spines each; anal fin without a spine; scales excessively small.

Genus 56.—PRIACANTHUS.—Cuvier.

Generic Character.—Lower jaw extending beyond the upper

one ; mouth obliquely retrouse ; teeth numerous and thick set ; pre-operculum dentated, and its base terminated by a dentated spine ; body covered with rough scales, investing the animal to the point of the snout.

Genus 57.—POLYPRION.—*Cuvier.*

Generic Character.—Head with many dentations ; under the operculum is a dentated ridge ; teeth crowded, minute in both jaws, also on the vomer palate and base of the tongue ; body and head protected by hard ciliated scales.

Genus 58.—HOLOCENTRUS.—*Artedi.*

Generic Character.—Snout short, somewhat extensible ; teeth small ; pre-operculum with a strong scale at its base, and the operculum with one or two at its upper margin ; scales thick, hard, and dentated ; soft part of the dorsal fin elevated above the spinous portion ; occiput osseous and striated ; without scales.

Holocentrus sogo.—THE SOGO HOLOCENTRUS.

Plate LXXXI. fig. 5.

Body silvery-red, with longitudinal yellow streaks on each side ; fins elongated, bright red ; tail greatly forked. Twelve inches long. Inhabits the North and South seas.

Genus 59.—ACERINA.—*Cuvier.*

Generic Character.—Head without scales, furrowed ; mouth slightly cleft, with small numerous teeth ; margin of the pre-operculum with eight or ten small hooked spines ; operculum with an acute spine ; scales serrated at their margins.

Genus 60.—STELLIFERUS.—*Cuvier.*

Generic Character.—Head scaleless and cavernous ; suborbitaries, pre-operculi, and operculi provided with spines ; snout tumid ; teeth small, thick set ; branchial membrane with four rays.

Genus 61.—SCOROPÆNA.—*Schneider.*

Generic Character.—Head about the orbits rough with spines, and also on the occiput and cheeks ; pre-operculum with three

or four spines, and the operculum having two, prolonged in ridges.

Genus 62.—SYNANCEIA.—Schneider.

Generic Character.—Head with unequal tubercles, protuberant in various degrees ; eyes directed upwards ; mouth retrousse ; destitute of a swimming bladder.

Genus 63.—PTEROIS.—Cuvier.

Generic Character.—Head covered with unequal fleshy appendages, and tuberculated ; dorsal and pectoral fins with long rays, surpassing the membrane.

Pterois antennata.—THE ANTENNATED PTEROIS.

Plate LXXXI. fig. 8.

Head provided with two great tentacula over each eye ; body with brown and yellow transverse stripes, and a brown band over the eyes. Twelve inches long. Inhabits the rivers in Amboyna.

Genus 64.—TÆNIANOTUS.—Lacepede.

Generic Character.—Operculi with one or more spines, but not dentated ; body much compressed ; dorsal fins long ; spinous and soft parts not distinguishable ; but forming a vertical band along the back.

Genus 65.—ATHERINA.—Linnæus.

Generic Character.—Intermaxillaries extensible, with minute teeth ; lower jaw and tongue smooth ; branchial membrane with five rays ; cheeks and operculi having scales ; two small dorsal fins ; sides with a silvery band.

Genus 66.—SPHYRÆNA.—Lacepede.

Generic Character.—Snout acute ; jaws greatly cleft ; under jaw projecting beyond the upper one, with a row of conical teeth, of which the two anterior ones are largest ; intermaxillaries having two strong teeth beyond, with a continuous row of smaller ones ; each palate bone provided with a row of strong teeth ; cheeks and operculi covered with scales.

Genus 67.—PARALEPIS.—Cuvier.

Generic Character.—Under jaw conical, extending beyond the upper one; provided with a row of conical teeth, the two anterior ones being the strongest; the ventral fins, and first dorsal ones, placed far behind; the second dorsal one merely rudimentary.

Genus 68.—MULLUS.—Linnæus.

Generic Character.—Head acutely sloping; eyes contiguous; chin with two long cirri; branchial membrane with three rays; head and body with large scales; two dorsal fins.

Mullus surmuletus.—THE SURMULLET.

Plate LXXXI. fig. 10.

Of a reddish silvery metallic lustre, with longitudinal golden bands. Fourteen inches long. Inhabits the seas of Northern Europe.

Genus 69.—POMATOMUS.—Lacepede.

Generic Character.—Snout abbreviated, with crowded teeth; eyes very large; pre-operculi somewhat notched; branchial membrane with seven rays; body elongated; covered with large deciduous scales; with two dorsal fins.

Genus 70.—MUGIL.—Linnæus.

Generic Character.—Head depressed, broad, and covered with scales; mouth with fleshy crenulated lips; lower jaw carinated in the middle, locking into a corresponding groove in the upper jaw; destitute of teeth; branchial membrane with three rays; ventral fins placed under the abdomen; two short, distant, dorsal fins, placed farther back than the ventrals; the first one spinous, the second corresponds with the anal fin.

Mugil auratus.—THE TANG.

Plate LXXXI. fig. 4.

Brown above; sides white, with yellow bands; fins fawn-coloured. Twelve inches long. Inhabits the Mediterranean.

Genus 71.—PERCA.—Cuvier.

Generic Character.—Snout not prolonged beyond the lips;

without scales ; pre-operculi dentated ; operculi spinous ; second dorsal fin same length as the first.

Genus 72.—CENTROPOMUS.—Lacepede.

Generic Character.—Snout smooth ; with numerous and thick set teeth ; pre-operculi dentated ; operculi destitute of spines, or having the points flattened ; the suborbital bone generally dentated.

Genus 73.—ENOPLOSUS.—Lacepede.

Generic Character.—Pre-operculi dentated and spinous towards the base ; suborbitaries dentated ; teeth small and flexible ; body and tail greatly compressed ; dorsal fins prolonged vertically and high.

Genus 74.—PROCHILUS.—Cuvier.

Generic Character.—Head short, smooth, with numerous and thick set teeth ; pre-operculi without dentations ; body oblong, with rather large scales.

Genus 75.—SANDRUS.—Cuvier.

Generic Character.—Head scaleless ; jaws with acute and distant teeth ; pre-operculi dentated ; operculi spineless.

Genus 76.—TERAPON.—Cuvier.

Generic Character.—Head oblong ; snout blunt, with small scales ; mouth small ; each jaw with a row of close set teeth, behind which are small and thick set ones ; pre-operculi dentated ; branchial membrane with six rays ; operculi spinous ; body oblong, with the shoulder bone strongly dentated.

Genus 77.—APOGON.—Lacepede.

Generic Character.—Crown of the head much produced ; teeth thick set and numerous ; pre-operculi dentated ; no cirri under the lower jaw ; body with large scales, which are but slightly adherent to the skin ; two dorsal fins.

Genus 78.—CINGLA.—Cuvier.

Generic Character.—Snout projecting, scaly ; body with rough scales ; teeth numerous, thick set ; operculi spinous ; pre-operculi dentated ; with two nearly equal dorsal fins.

Genus 79.—UMBRINA.—Cuvier.

Generic Character.—Snout moderately projecting; teeth small, crowded; pores under the lower jaw; pre-operculi dentated; second dorsal fin longer than the first.

Genus 80.—LONCHURUS.—Bloch.

Generic Character.—Head provided with scales; snout projecting slightly; ventral fins separate; tail lanceolate.

Genus 81.—SCIÆNA.—Lacepede.

Generic Character.—Snout obtuse, provided with scales; teeth consisting of a row of unequal hooks; dentations of the pre-operculi scarcely discernible; operculi with distinct spines.

Genus 82.—POGONIAS.—Lacepede.

Generic Character.—Snout obtuse; teeth crowded; pores under the lower jaw, and provided with numerous cirri; operculi without dentations and scaly; spinous portion of the dorsal fin separated from the other at the base.

Genus 83.—OTOLITHES.—Cuvier.

Generic Character.—Jaws with numerous teeth, the external row being the largest; upper jaw provided with two long teeth; snout flattened; dentations of the pre-operculi hardly visible; dorsal fin in two parts.

Genus 84.—ANCYLODON.—Cuvier.

Generic Character.—Head compressed, scaleless, provided with dentations and spines; mouth cleft; lower teeth in the form of long projecting hooks; second dorsal fin long; tail pointed.

Genus 85.—PERCIS.—Schneider.

Generic Character.—Head depressed; teeth hooked; pre-operculi slightly dentated; operculi spinous; body elongated; first dorsal fin consisting of a few rays only, the second running along nearly the whole back; anal fin spineless.

Genus 86.—TRACHINUS.—Linnæus.

Generic Character.—Head compressed; eyes approaching ver-

tically, with small spines before each, and a strong one on the operculi; ventral and anal fins placed far forward; destitute of a swimming bladder.

Trachinus draco.—THE DRAGON WEEVER.

Plate LXXXI. fig. 9.

Brownish-yellow; first dorsal fin black, and having five rays. Twelve inches long. Inhabits the seas of Northern Europe.

Genus 87.—URANOSCOPUS.—*Linnæus*.

Generic Character.—Head depressed, nearly cubical, thicker than the body; eyes placed above, and directed upwards; lower jaw longer than the upper one; mouth vertically cleft; pre-operculi crenated beneath; each shoulder provided with a strong spine; first dorsal fin small, the rays of which are striated; the second and anal fins long and soft; destitute of a swimming bladder.

Uranoscopus scaber.—THE STAR-GAZER.

Plate LXXXI. fig. 7.

Back brown, sides gray, abdomen white; interior lip of the lower jaw with a long filament; lips with smaller cirri. Twelve inches long. Inhabits the Northern seas.

Genus 88.—TRIGLA.—*Linnæus*.

Generic Character.—Head cubical, covered with a bony plate, formed by the very large suborbitaries; teeth sharp, and crowded in the form of the pile of velvet; pre-operculi, operculi, occiput, and shoulder, usually with a spinous termination behind; scales small; lower rays of the pectoral fins separated from the rest; with a bilobate swimming vessel.

Trigla hirundo.—THE SWALLOW GURNARD.

Plate LXXXII. fig. 1.

Brown; snout slightly notched; pectoral fins equal to a third of the body in length, spotted with blue. Two feet long. Inhabits the European seas.

Genus 89.—PERISTEDION.—*Lucepede*.

Generic Character.—Snout forked, formed by the suborbital

prolongations; destitute of teeth; with branchial cirri under the lower jaw; body entirely covered with osseous plates; two dorsal fins, united at their base, the anterior one with longest rays.

Genus 90.—**DACTYLOPTERUS.**—*Lacepede.*

Generic Character.—Snout short; jaws with small rounded teeth; occiput and pre-operculi prolonged behind into long spines; with numerous detached rays under the throat, and united by a membrane, so as to form distinct pectoral fins; having supernumerary wing-like pectorals, nearly as long as the body.

Dactylopterus volitans.—**THE FLYING GURNARD**

Plate LXXXII. fig. 7.

Crimson-red above, whitish beneath; first dorsal fin and tail pale lilac. Twelve inches long. Inhabits the Mediterranean.

Genus 91.—**CEPHALACANTHUS.**—*Lacepede.*

Generic Character.—Head provided on each side with two long dentated spines; fins of ordinary length; no isolated rays in front of the first dorsal one.

Genus 92.—**MONOCENTRIS.**—*Schneider.*

Generic Character.—Head short, thick, with large mail-like scales; body short and robust, covered with very large mail-like carinated scales; first dorsal fin with four or five unattached spines; and the ventral fins with one, in the angle of which are soft rays.

Genus 93.—**COTTUS.**—*Linnæus.*

Generic Character.—Head depressed, spinous, and thicker than the body; first dorsal fin spinous; second one soft, and free from the first; ventral fins situated on the thorax.

Cottus gobio.—**THE RIVER BULLHEAD.**

Plate LXXXII. fig. 2.

Deep yellowish-green on the back and head, variegated with black, paler beneath. Three and a half inches long. Inhabits the rivers of Europe.

Genus 94.—**ASPIDOPHORUS.**—*Lacepede.*

Generic Character.—Head thicker than the body, with produced points above and some depressions; flat beneath; body octagonal, covered with scaly plates.

Genus 95.—**PLATYCEPHALUS.**—*Bloch.*

Generic Character.—Head depressed; suborbitaries large and broad; body depressed; ventral fins considerably apart, and placed behind the pectorals.

Genus 96.—**BATRACHUS.**—*Schneider.*

Generic Character.—Head depressed, broader than the body; mouth large; lips frequently furnished with cirri; operculi spinous; first dorsal fin short, having three spinous rays; the second and anal fins soft and long.

Genus 97.—**LOPHIUS.**—*Cuvier.*

Generic Character.—Head very broad and considerably depressed, with various spines and moveable rays; mouth very wide, with long acute teeth; lower jaw provided with numerous cirri; branchial membrane having six elongated rays, and the opening behind the pectorals; ventral fins placed before the pectorals; body destitute of scales; no swimming bladder

Lophius piscatorius.—**THE FISHING-FROG**

Plate LXXXII. fig. 6.

Brown, clouded with dusky; pale dusky-green beneath. Four feet long. Inhabits the European seas.

Genus 98.—**ANTENNARIUS.**—*Commerson.*

Generic Character.—Head compressed, provided with five rays, the first slender, frequently terminated by a tuft, the two next increased by a membrane, which is tumid in some species, and united like a fin; mouth opening vertically; branchial membrane with four rays; dorsal fin large; body often covered with fleshy appendages.

Antennarius histrio.—THE HARLEQUIN ANGLER.

Plate LXXXII. fig. 5.

Drab-coloured, marbled with deep brown or dusky patches. Twelve inches long. Inhabits the Indian and American seas.

Genus 99.—MALTHE.—Cuvier.

Generic Character.—Head extremely broad and depressed; eyes placed far in front; snout elongated, pointed, and protrac-tile, with the mouth underneath; branchial membrane with six or seven rays, opening on the dorsal surface above the pectoral fins; provided with one soft dorsal fin; body with rough osseous tubercles, and cirri along the sides.

TRIBE V.—SCOMBEROIDES.

Genus 100.—SCOMBER.—Linnaeus.

Generic Character.—Jaws with a row of pointed teeth; anal and dorsal fins posteriorly divided into spurious parts; the second dorsal fin distant from the first; tail with a projecting ridge on each side.

Genus 101.—THYNNUS.—Cuvier.

Generic Character.—Jaws with a row of pointed teeth; anal and second dorsal fins subdivided; first dorsal fin reaching nearly to the second, and touching in some species; tail with a projecting ridge.

Genus 102.—ORCYNUS.—Cuvier.

Generic Character.—Jaws with a row of pointed teeth; first dorsal fin extending to nearly the second; pectoral fins very long, protruding beyond the vent; anal and second dorsal fins subdivided.

Genus 103.—CARANX.—Lacepede.

Generic Character.—Teeth usually crowded, placed in a narrow line, sometimes so small as to be nearly imperceptible; lateral line carinated by a row of imbricated scales; pectoral fins long and pointed; anal fin having a small one in front, supported by two spines.

Curanx ruber.—THE RED MACKREL.

Plate LXXXII. fig. 3.

Rosy-red, with the sides and abdomen silvery; tail deeply forked. Fourteen inches long. Inhabits the Indian and American seas.

Genus 104.—CITULA.—Cuvier.

Generic Character.—First rows of the dorsal and anal fins elongated; pectoral fins lengthened; a small fin with two spines, placed before the anal one; lateral line formed by a row of imbricated scales.

Genus 105.—SERIOLA.—Cuvier.

Generic Character.—Pectoral fins long and pointed; a small two-spined fin placed before the anal one; lateral line with very small imbricated scales, so depressed as hardly to form a ridge.

Genus 106.—NOMEUS.—Cuvier.

Generic Character.—Body broad, with small scales; ventral fins very large and broad, attached to the abdomen by their internal margin; a small two-spined fin before the anal one.

Genus 107.—SELENE.—Lacepede.

Generic Character.—Forehead nearly vertical, and margined; jaws with minute teeth on their edges; body greatly compressed, of a pentagonal or tetragonal shape, as broad as it is deep; scales excessively minute and indistinct; two dorsal fins, with one or two spines between them; first ray of the dorsal fin falcate, prolonged beyond the tip of the tail.

Genus 108.—GALLUS.—Lacepede.

Generic Character.—Head compressed; both jaws provided with teeth; upper lip provided with a transverse vertical membrane below; two dorsal fins with spines along each side; several of the rays furnished with long filaments; ventral fins long.

Genus 109.—ARGYREIOSUS.—Lacepede.

Generic Character.—Body greatly compressed, ventral fins elongated; one dorsal fin subdivided, the second falcate; spines

of the first part of the dorsal and anal fins provided with long filaments.

Genus 110.—VOMER.—Cuvier.

Generic Character.—Forehead edged; teeth minute; body greatly depressed, the lateral line only with scales; abdomen margined; fins all short, the first dorsal and anal ones being merely rudimentary.

Genus 111.—TETRAGONURUS.—Risso.

Generic Character.—Under jaw vertically elevated, with a row of acute cutting teeth, locking between those of the upper jaw; palatines with a row of small pointed teeth, and two on the vomer; two dorsal fins; and two projecting appendages on each side of the tail.

Genus 112.—MACROGNATHUS.—Lacepede.

Generic Character.—Snout elongated, depressed, and terminating in a cartilaginous point, somewhat longer than the lower jaw; body elongated, without ventral fins; provided with numerous dorsal spines, and two in front of the anal fins; second dorsal and anal fin opposite, and distinct from the caudal fin.

Genus 113.—MASTACEMBELUS.—Gronovius.

Generic Character.—Jaws nearly of equal length; body elongated, without ventral fins; dorsal and anal fins nearly united to the caudal one.

Genus 114.—GASTEROSTEUS.—Lacepede.

Generic Character.—Having one dorsal fin, with free spines before; ventral fins with one strong sharp spine, and devoid of other rays; bones of the pelvis forming a pointed shield behind.

Genus 115.—SPINACHIA.—Cuvier.

Generic Character.—Body elongated, with a broad lateral line consisting of bony plates, which form a ridge; ventral fins composed of two spines and a small membrane, and are placed behind the pectorals; with numerous dorsal spines.

Genus 116.—CENTRONOTUS.—Lacepede.

Generic Character.—Having one dorsal fin with spines be-

fore ; ray of ventral fins mostly short ; anal fin shorter than the dorsal one, sometimes provided with free spines ; sides of the tail carinated.

Genus 117.—LICHIA.—Cuvier.

Generic Character.—Body deep, compressed, with a smooth lateral line ; first dorsal spine frequently bent forward and immoveable ; ventral fins with some rays ; anal fin with one or two free spines before it.

Genus 118.—BLEPHARIS.—Cuvier.

Generic Character.—Body rhomboidal and deep ; dorsal spines very short ; first rays of the dorsal and anal fins soft, ending in prolonged filaments, which are longer than the body ; with free spines before the vent.

Genus 119.—ZEUS.—Linnæus.

Generic Character.—Jaws greatly protractile, with crowded teeth ; body oval, compressed ; spinous divisions of the dorsal and anal fins separated by a deep notch ; with projecting or spinous scales at the base of the vertical fins, and also between the anal and ventrals.

Genus 120.—CARPOS.—Lacépède.

Generic Character.—Destitute of teeth ; body depressed, with small rough scales ; two dorsal fins ; devoid of spines before the dorsal or anal fins ; tail depressed.

Genus 121.—EQUULA.—Cuvier.

Generic Character.—Snout protractile ; mouth with very small crowded teeth ; two spines above each eye, base of the operculi dentated ; body compressed ; scales very small, larger and carinated on the lateral line ; dorsal fin continuous, the spinous portion projecting ; anal and caudal fins with a row of spines on each side, and a rounded plate before the ventrals.

Genus 122.—MENE.—Lacépède.

Generic Character.—Body compressed, provided with one dorsal fin ; abdomen semicircular and carinated ; back and shoulder produced ; ventral fins narrow and elongated.

Genus 123.—ATROPUS.—Cuvier.

Generic Character.—Forehead sloping; snout very short; lower jaw projecting; body compressed; one dorsal fin, provided with three spines, and having part of the soft rays prolonged into filaments, and two free spines in front of it; lateral line carinated towards the tail.

Genus 124.—TRACHICHTHYS.—Shaw.

Generic Character.—Head rounded in front; mouth wide, with thick set numerous teeth; branchial membrane with four rugose rays; one elevated and acute dorsal fin; sides, upper and under part of the tail with ample strongly carinated scales, with similar ones between the ventral and anal fins.

Genus 125.—CHRYOTOSUS.—Lacepede.

Generic Character.—Forehead produced, and rounded; snout short; mouth destitute of teeth; branchial membrane with six rays; body and tail compressed, ovate, without visible scales; anterior portion of the dorsal fin elevated and acute, the middle part small; tail carinated on the sides; ventrals placed farther behind than the pectorals.

Genus 126.—XIPHIAS.—Linnæus.

Generic Character.—Snout lengthened, and resembling the blade of a sword; jaws provided with strong asperities in place of teeth; body elongated, rounded, with scarcely perceptible scales; pectoral fins long and acute; dorsal fin with two or three spinous rays; no ventrals; tail furnished with a projecting carina on each side.

Genus 127.—ISTIOPHORUS.—Lacepede.

Generic Character.—Upper jaw elongated in the form of a sword-blade; ventral fins with two slender and greatly lengthened rays; first dorsal fin large and elevated.

Istiophorus platypterus.—THE BROAD-FINNED SWORD-FISH.

Plate LXXXII, fig. 8.

Back, head, fins, and tail, lead-gray; silvery-blue beneath. Twenty feet long. Inhabits the Tropical seas.

Genus 128.—CENTROLOPHUS.—Lacepede.

Generic Character.—Head oblong, obtuse, edged above; teeth very fine, and placed in a single row; body elongated, with small scales; a row of very short, spinous prominences in front of the dorsal fin; anal fin shorter than the dorsal one.

Genus 129.—OLIGOPODUS.—Risso.

Generic Character.—Head margined above; body elongated; covered with small scales; with a row of dorsal eminences, sensible to the touch only; dorsal and anal fins united to the caudal one, which terminates in a point; ventral fins with one ray only.

Genus 130.—CORYPHÆNA.—Cuvier.

Generic Character.—Head compressed; forehead vertical and margined above; teeth minute, and thick set; body elongated, covered with small scales; dorsal fin commencing from the nape.

Coryphæna Hippuris.—THE COMMON CORYPHÆNA.

Plate LXXXII. fig. 9.

Of a vivid silvery hue, with yellow spots; fins rich yellow; tail forked. Four feet long. Inhabits the Mediterranean.

Genus 131.—PTERACLIS.—Gronovius.

Generic Character.—Teeth in one row in the upper, and two in the under jaw; body elongated, and greatly compressed; scales large, notched at the margin to receive a small spine in the succeeding scale; dorsal fin greatly elevated, commencing on the head and terminating at the caudal fin; ventrals placed before the pectorals; anal fin of equal size.

Genus 132.—AMPHACANTHUS.—Schneider.

Generic Character.—Jaws convex, with a row of small dentated teeth along their edges; a curved spine placed in front of the dorsal fin, and one at each side of the ventrals; the internal margin attached to the abdomen; scales small.

Genus 133.—ACANTHURUS.—Lacepede.

Generic Character.—Front vertical; teeth placed in one

row, and having crenulated edges ; body compressed, broader than long, scales small ; a spine at the base of the tail on each side.

Genus 134.—*ASPISURUS.*—*Lacepede.*

Generic Character.—Snout projecting ; mouth small with crenulated teeth ; body compressed, higher than broad ; dorsal fin covered with small scales ; tail with a hard plate on each side.

Genus 135.—*PRIONURUS.*—*Lacepede.*

Generic Character.—Teeth crenulated ; body compressed, with numerous spines on each side of the tail.

Genus 136.—*NASEUS.*—*Lacepede.*

Generic Character.—Nose provided with a horn-like protuberance ; teeth closely set in a single row ; body and tail with rough shagreened skin ; extremity of the tail with two shield-like plates on each side.

TRIBE VI.—*SQUAMIPENNES.*

Genus 137.—*CHÆTODON.*—*Cuvier.*

Generic Character.—With crowded bristly teeth ; body greatly compressed, oval, very deep ; dorsal and anal fins covered with scales ; dorsal spines nearly equal ; operculi smooth.

Genus 138.—*CHELMON.*—*Cuvier.*

Generic Character.—Snout elongated into a narrow cylindrical beak ; teeth crowded and bristly ; body greatly compressed, which with the dorsal and anal fin is covered with scales.

Genus 139.—*PLATAX.*—*Cuvier.*

Generic Character.—Snout blunt ; teeth small, numerous, and thick set ; body greatly deeper than long ; dorsal and anal fins extremely long and acute ; spines of the dorsal fin concealed in its elevated edge, and the first ray greatly elongated.

Platax Teira.—*THE LONG-FINNED CHÆTODON.*

Plate LXXXII. fig. 10.

Silvery white, with three black bands ; dorsal and anal fins extremely long and arcuated ; ventral fins black. Inhabits the seas of Arabia and India.

Genus 140.—HENIOCHUS.—Cuvier.

Generic Character.—Teeth small; body compressed; first dorsal spines much elongated and subulate, with shorter spines behind, followed by the usual soft rays.

Genus 141.—EPHIPPUS.—Cuvier.

Generic Character.—Teeth small; body considerably compressed; dorsal fin having a notch between the spinous and soft portion.

Genus 142.—CHETODIPTERUS.—Lacepede.

Generic Character.—Snout projecting; teeth very small and flexible; body compressed, as deep as it is long; separation of the dorsal fin so deep as to give it the appearance of two.

Genus 143.—HOLOCANTHIUS.—Lacepede.

Generic Character.—Teeth minute; pre-operculum sometimes dentated, at others smooth, with a strong spine near its base; body compressed, ovate; vertical fins slightly elevated at their origin; soft rays of the dorsal and anal fins elongated, and falciform.

Genus 144.—ACANTHOPODUS.—Lacepede.

Generic Character.—Mouth small; teeth short and thick set; body greatly compressed, as deep as long; dorsal fin covered with small scales; ventral fins represented by two short spines.

Genus 145.—OSPHRONEMUS.—Commerson.

Generic Character.—Head and branchial membranes provided with scales; mouth small, with very short crowded teeth; pre-operculi and suborbitals dentated on their margin; one ray of each ventral fin forming an articulated bristle as long as the body; at each anal fin there is a spine.

Genus 146.—TRICHOPODUS.—Lacepede.

Generic Character.—Head covered with scales; teeth short and crowded; pre-operculi and suborbitals with dentated margins; one ray of the ventrals lengthened and filamentary; scaly at the base; without spines at the anal fin.

Genus 147.—TOXOTES.—Cuvier.

Generic Character.—Snout obtuse, depressed; teeth like a file; lower margin of the pre-operculi and suborbitars finely dented; body compressed, covered with large scales; dorsal fin short, commencing opposite the origin of the anal fin.

Genus 148.—KURTUS.—Bloch.

Generic Character.—Head and body considerably compressed; teeth crowded; back elevated; dorsal fin greatly shorter than the anal one, and placed somewhat in front of it.

Genus 149.—ANABAS.—Cuvier.

Generic Character.—Snout obtuse and short; both jaws provided with rasp-like teeth, but strong and acute on the pharynx; base of the branchiæ with complicated laminae.

Genus 150.—CÆSIO.—Commerson.

Generic Character.—Upper jaw somewhat protractile; both jaws with a row of small pointed teeth, with exceedingly minute teeth behind them; branchial membrane with seven rays; body oblong; dorsal and anal fins covered with scales; ventrals with two long scales on each side, and one between them.

Genus 151.—BRAMA.—Schneider.

Generic Character.—Head covered with scales; snout truncated; mouth retrousse; teeth hooked, the external row largest; dorsal and anal fins elevated in front, and inclining towards the tail.

Genus 152.—STROMATEUS.—Linnaeus.

Generic Character.—Teeth very fine, edged, acute, and placed in one row; body oval, depressed; without ventral fins.

Genus 153.—FIATOLA.—Cuvier.

Generic Character.—Teeth in a single row, small and pointed; body oval, compressed; scales minute; dorsal and anal spines hidden in the anterior margin of the fins.

Genus 154.—SESERINUS.—Cuvier.

Generic Character.—Teeth in a single row, small and acute;

body ovate, compressed; scales minute; first dorsal and anal spines bent forward; ventral fins represented by two spines; lateral line double.

Genus 155.—PIMELEPTERUS.—Lacepede.

Generic Character.—Teeth edged, obtuse, crowded, and equal; branchial membrane with four rays, scaly; body oval and compressed; soft portion of the vertical fins thickly covered with scales.

Genus 156.—KYPHOSUS.—Lacepede.

Generic Character.—Operculi covered with scales; back produced, with a prominence on the neck in front of the dorsal fin, and another between the eyes; pectoral fins elongated and pointed; tail forked.

Genus 157.—PLECTORHYNCHUS.—Lacepede.

Generic Character.—Jaws with a single row of extremely minute teeth; pre-operculi dentated; body ovate, compressed; ventral fins broad, with numerous rays.

Genus 158.—GLYPHISODON.—Lacepede.

Generic Character.—Head with scales; teeth edged, placed in a single row, frequently notched; body and tail greatly compressed; lateral line opposite the dorsal fin.

Genus 159.—POMACENTRUS.—Linnaeus.

Generic Character.—Head covered with scales; teeth edged, and placed in a single row, frequently notched; pre-operculi dentated; lateral line terminating opposite the dorsal fin.

Genus 160.—AMPHIPRION.—Cuvier.

Generic Character.—Teeth placed in a single row and edged; suborbitals and four pieces of the operculi dentated; body ovate, compressed.

Genus 161.—PREMNAS.—Cuvier.

Generic Character.—Head greatly obtuse; teeth set in a single row, very fine and short; suborbitals with strong spines un-

der them ; pre-operculi and sub-operculi dentated ; lateral line terminating before reaching the tail.

Genus 162.—TEMNODON.—Cuvier.

Generic Character.—Head destitute of spines or dentations ; each jaw provided with a row of compressed pointed teeth, and smaller ones behind ; palate and vomer with fine thick-set teeth ; branchial membrane having five rays ; body oblong, scaly.

Genus 163.—EQUES.—Bloch.

Generic Character.—Head obtuse ; teeth small and crowded ; body elongated ; the rays of the dorsal fin prolonged.

Equus Americanus.—THE KNIGHT FISH.

Plate LXXVII. fig. 9.

Back brown ; sides and abdomen yellow ; three oblique black bands ; a narrow one passing over the eyes, the second one, which is greatly broader, commences on the crown and terminates under the throat ; the third on the dorsal fin, and is continued to the tip of the caudal fin. Twelve inches long. Inhabits the American seas.

Genus 164.—POLYNEMUS.—Linnaeus.

Generic Character.—Head covered with scales ; snout gibbous ; teeth crowded ; pre-operculi dentated ; vertical fins scaly ; five rays under the pectoral fins, which in some species exceed the length of the body.

TRIBE VII.—FISTULARIDÆ.

Genus 165.—FISTULARIA.—Lacépède.

Generic Character.—Head greatly elongated ; jaws very narrow, tubular, and much produced ; teeth small ; branchial membrane with seven rays ; body considerably elongated and slender ; fins very small, one dorsal being placed opposite the anal fin ; between the lobes of the tail there is a filamentary process sometimes as long as the body.

Genus 166.—AULOSTOMUS.—Lacépède.

Generic Character.—Jaws tubular, greatly elongated and nar-

row ; body much elongated, covered with scales ; a row of free spines in front of the dorsal fin.

Aulostomus Chinensis.—THE CHINESE GAR FISH.

Plate LXXVII. fig. 2.

Pale reddish-brown above, and paler below ; with three grayish longitudinal stripes ; fins pale-yellow. Four feet long. Inhabits the Indian seas.

Genus 167.—CENTRISCUS.—*Linnaeus*.

Generic Character.—Mouth very small, and obliquely cleft ; body oblong-ovate, compressed in the sides, and carinated in the centre of the abdomen ; first dorsal fin spinous, the first spine very long, supported by a scaly appendage ; ventral fins small, and placed behind the pectorals.

Genus 168.—AMPHISILE.—*Klein*.

Generic Character.—Back provided with large scale-like plates ; the first dorsal fin appearing to be a continuation of these.





MOLLUSCA.

INVERTEBRAL ANIMALS.

INVERTEBRAL animals are those which are destitute of a spine, or back bone. This great division of animated beings possess few positive characters which they have in common. Some have their bodies protected by a shelly covering ; others have no other defence than a soft and tender skin ; while others have their members surrounded by crustaceous plates. The nervous and circulating systems are less perfect than in animals with a spine ; and few of them have red blood. The spinal chord is represented in molluscous animals by ganglions of the nervous filaments. None of the invertebral animals possess all the senses ; and the sexes are frequently united in the same individual : while, in others, the species is continued by a process somewhat resembling vegetation.

Cuvier arranges invertebral animals into three great divisions. 1st, Those destitute of a skeleton, which are termed *Mollusca*. 2d, Animals whose trunk is divided into rings, these are called *Articulata*. 3d, Those animals known by the name of *Zoophytes*, which Cuvier calls *Radiata*.

DIVISION II.—MOLLUSCA.

CLASS I. MOLLUSCA

CLASS III. TUNICATA

II. CONCHIFERA

IV. CIRRIPIDA

DIVISION III.—ARTICULATA.

CLASS V. ANNELIDES

CLASS VIII. MYRIAPODA

VI. CRUSTACEA

IX. INSECTA

VII. ARCHNIDES

DIVISION IV.—RADIATA.

CLASS X. ECHINODERMATA

CLASS XIII. POLYPI

XI. ENTOMAZOA

XIV. INFUSORIA

XII. ACALEPHA

The arrangement adopted is that of Lamarck, but reversed in the order.

ORDER I.—HETEROPODA.

Head distinct, with two eyes, but destitute of arms arranged around the head ; body free, elongated, fitted for swimming horizontally ; no foot under the abdomen or throat for walking ; one or more fins, without any regular order, and not arranged in pairs as in fishes.

Genus 1.—PHYLLIROE.—Lamarck.

Generic Character.—Head distinct, with two tentaculi, two eyes, and a proboscis ; body oblong, greatly compressed, almost lamelliform ; tail forming a single fin ; branchiæ situated internally, and resembling granulated filaments.

Genus 2.—PTEROTRACHIA.—Lamarck.

Generic Character.—Head distinct, with horny jaws, two eyes, but no tentacula ; branchiæ penniform, protruding externally, and placed along with the heart under the abdomen, contiguous to the tail ; body free, oblong, gelatinous, pellucid, with a terminal tail, having one or more fins.

Genus 3.—CARINARIA.—Lamarck.

Generic Character.—Head distinct, provided with two tentacula, a contractile elongated mouth, and two eyes ; heart and branchiæ united into a single mass, projecting from the abdomen, contiguous to the tail, and enveloped in a shell ; body

elongated, gelatinous, pellucid, with a tail at its posterior extremity.

SHELL univalve, conical, compressed, unilocular, extremely thin, hyaline; apex convoluted into a spire; back, in some species, forming a notched keel; aperture oblong and entire.

Carinaria fragilis.—THE FRAGILE CARINARIA.

Plate LXXXIII. fig. 1.

Shell excessively thin, hyaline, striated longitudinally, destitute of a dorsal keel. Inhabits the African seas.

ORDER II.—CEPHALOPODA.

Head emanating from a bag-shaped mantle, and surmounted by inarticulated arms; provided with suckers, and investing the mouth; two sessile eyes; mouth provided with two horny mandibles; three hearts; the sexes in separate individuals.

SUB-DIVISION I.—CEPHALOPODA SEPIARIA.

Destitute of either external or internal shell; but provided with a solid, free, calcareous, or corneous substance, in the interior of the body.

Genus 1.—SEPIA.—*Linnaeus*.

Generic Character.—Mouth terminal, invested by ten arms provided with cups, of which two are placed on peduncles, and longer than the rest; body fleshy, depressed, free, and enveloped in a bag, which is obtuse behind, margined its whole length on either side by a narrow fin; having a free, porous, opaque bone included within the body, close to the back.

Genus 2.—LOLIGO.—*Lamarch*.

Generic Character.—Mouth terminal, surrounded by ten arms, provided with cups, of which two are longer than the others, and placed on penduncles; body fleshy, enveloped in an oblong cylindrical bag, acuminate at the base, and provided with wings below; an elongated, thin, transparent, corneous lamina, enclosed within the body, near the back.

Loligo vulgaris.—THE COMMON CUTTLE-FISH.

Plate XCV. fig. 3.

Wings somewhat rhomboidal, the bag cylindrical, and angular at the base; the sac limb three-lobed; the dorsal lamina anteriorly narrowed. Inhabits the European seas.

Genus 3.—*LOLIGOPSIS*.—*Lamarck*.

Generic Character.—Mouth terminal, surrounded by eight sessile and equal arms; body fleshy, oblong, enveloped in a bag, which is pinnated behind, and slightly acuminate at the base.

Genus 4.—*OCTOPUS*.—*Lamarck*.

Generic Character.—Mouth terminal, surrounded by eight simple elongated arms, provided with sessile cups; body fleshy, obtuse beneath, and enveloped in a bag, which is unprovided with wings; internal dorsal bone exceedingly small, or devoid of one in some species.

Octopus vulgaris.—THE COMMON OCTOPUS.

Plate XCV. fig. 5.

Body smooth; cups arranged in double rows, and set somewhat apart; arms tapering to an acute point.

SUB-DIVISION II.—*CEPHALOPODA MONOTHALAMA*.

Having unilocular shells, entirely external, and enveloping the animal.

Genus 5.—*ARGONAUTA*.—*Linnaeus*.

Generic Character.—Shell spiral, univalve, unilocular, and membranaceous; doubly carinated.

Argonauta Argo.—THE ARGUS ARGONAUTA, OR PAPER NAUTILUS.

Plate LXXXIII. fig. 2.

Shell white, involute, extremely fragile, sides with undulated ridges, and obsoletely striate; keel with small tubercles. Inhabits the Mediterranean.

SUB-DIVISION III.—*CEPHALOPODA POLYTHALAMA*.

Shell multilocular, partly or wholly internal, and enveloped in the posterior part of the body.

TRIBE I.—AMMONACEA.

With a sinuous septa, margin lobed and cut, meeting together upon the internal partition of the shell, and articulated by serrated sutures.

Genus 6.—BACULITES.—*Lamarck.*

Generic Character.—Shell erect, cylindrical, slightly compressed, and somewhat conical in some species; partitions articulated by sinuous sutures; septa transverse, close, imperforate; lobed and lanceolate at the margin.

Baculites Faugusii.—FAUGUS'S BACULITES.

Plate LXXXIII. fig. 3.

Erect, cylindrical, opposite sides smooth and depressed; sutures with lobed dentations.

Genus 7.—TURRILITES.—*Lamarck.*

Generic Character.—Shell spiral, turrited, volutions contiguous, and all conspicuous; partitions articulated with sinous sutures; septa transverse, lobed, and lacinated at the margin; aperture nearly round.

Turrilites costulata.—THE RIBBED TURRILITES.

Plate LXXXIII. fig. 4.

Erect, turrited; volutions convex, with transverse ribs, each with a tubercle at its base.

Genus 8.—AMMONOCERATITES.—*Lamarck.*

Generic Character.—Shell horn-shaped, arcuated, subsemicircular; the partitions articulated with sinous, lacinate, branched sutures; septa transverse, sinous, imperforate; their margins lobed, lacinate; having a marginal tube or syphon, which does not perforate the septa.

Ammonoceratites glossoides.—THE GLOSSY AMMONOCERATITES.

Plate LXXXIII. fig. 5.

Large, thick, cylindrical, arcuated, laterally depressed; inside flatly concave; apex compressed, tongue-shaped. Nineteen

inches two lines long. Fossil, East Indies; and in Mount St Catharine, near Rouen.

Genus 9.—ORBULITES.—*Lamarck.*

Generic Character.—Shell subdiscoid, spiral, with the volutions contiguous; the last one enveloping the rest; partitions articulated by sinous sutures; septa transverse, lobed at their circumference, perforated by a marginal tube.

Orbulites striata.—THE STRIATED ORBULITES.

Plate LXXXIII. fig. 6.

Umbilicated; volutions hidden, transversely and minutely striated and ribbed; back acute. One and a half inches long. Fossil.

Genus 10.—AMMONITES.—*Lamarck.*

Generic Character.—Shell discoid, spiral; volutions contiguous, wholly visible; inner partitions articulated by sinous sutures; septa transverse, lobed at the circumference, and imperforated at the disc, but perforated by a marginal tube near the margin.

Ammonites armatus.—THE ARMED AMMONITES.

Plate LXXXIII. fig. 7.

Subcarinated, volutions depressed at their inner margins; with strong transverse striæ and clavate ribs. Fossil.

TRIBE II.—NAUTILACEA.

Shell discoid, with a central spire, and the cells short, which do not extend from the centre to the circumference.

Genus 11.—NAUTILUS.—*Linnaeus.*

Generic Character.—Shell discoid, spiral, multilocular, with simple partitions; volutions contiguous, the last or body one enveloping the rest; the septa transverse, and externally concave, perforated in the disc; margins entire.

Nautilus umbilicatus.—THE UMBILICATED NAUTILUS.

Plate LXXXIII. fig. 8.

Suborbicular; the centre of the volutions umbilicated; aperture round, heart-shaped; pale fawn-coloured, with chestnut

undulated transverse clouds. Six inches long. Inhabits the Indian Ocean.

Genus 12.—NUMMULITES.—*Lamarck.*

Generic Character.—Shell lenticular, attenuated at the margins; spire internal, discoid, multilocular, covered over by several tables; the outer partitions complicated, produced, extending and uniting on each side of the centre; cells very numerous, small, alternate, and formed by transverse imperforate septa.

Nummulites complanatus.—THE FLAT NUMMULITES.

Plate LXXXIII. fig. 9.

Orbicular, broad, depressed at the sides, and smooth; margin undulated. One and a half inches long. Fossil in France.

Genus 13.—VORTICIALIS.—*Lamarck.*

Generic Character.—Shell discoid, spiral, multilocular; volutions contiguous, but not appearing externally; septa transverse, imperforate, but not extending from the centre to the circumference.

Vorticialis strigilata.—THE CREASED VORTICIALIS.

Plate LXXXIII. fig. 10.

Somewhat depressed, transversely ribbed, and spirally striated. Fossil.

Genus 14.—POLYSTOMELLA.—*Lamarck.*

Generic Character.—Shell discoid, multilocular, with invisible volutions; with numerous transverse ribs; aperture formed by variously disposed holes.

Polystomella crispa.—THE WRINKLED POLYSTOMELLA.

Plate LXXXIII. fig. 11.

Slightly wrinkled, and ribbed transversely. Found fossil in the chalk formations.

Genus 15.—SIDEROLITES.—*Lamarck.*

Generic Character.—Shell discoid, multilocular; volutions contiguous, but not visible externally; the disc convex on both sides, and studded with tubercular dots; the circumference mar-

gined with unequal radiating lobes; septa transverse, imperforate: aperture distinct, somewhat lateral.

Siderolites calcitrapoides.—THE CHALK SIDEROLITES.

Plate LXXXIII. fig. 12.

With four lobes, and punctated throughout. Fossil in the mountain of St Peter, at Maëstricht.

Genus 16.—DISCORBIS.—*Lamarck*.

Generic Character.—Shell discoid, spiral, multilocular, with simple partitions; the volutions wholly visible, exposed, and contiguous; with transverse, numerous, and imperforate septa.

Discorbis visicularis.—THE VISICULAR DISCORBIS.

Plate LXXXIII. fig. 13.

Volutions nodulous, subvisicular; the internal volution hidden by the nodules. Fossil at Grignon.

TRIBE III.—RADIOLACEA.

Shell discoid, with a central spire, and elongated radiating cells, extending from the centre to the circumference.

Genus 17.—PLACENTULA.—*Lamarck*.

Generic Character.—Shell orbicular, convex above and below, multilocular; aperture oblong, narrow, disposed like a radius in the lower disc, or sometimes in both upper and under.

Placentula astricans.—THE STAR-SHAPED PLACENTULA.

Plate LXXXIII. fig. 14.

Volutions convex; partitions radiating from the centre. Fossil.

Genus 18.—LENTICULINA.—*Lamarck*.

Generic Character.—Shell sublenticular, spiral, multilocular; outer margins of the volutions complicated, and extending above and below to the centre; septa imperforate, curved, and lengthened on both sides in the form of rays; aperture narrow, projecting over the last volution.

Lenticulites rotulata.—THE ROLLED LENTICULITES.

Plate LXXXIII. fig. 15.

Orbicular ; margin acute ; disc globular. Fossil at Mendon.

Genus 19.—ROTULITES.—*Lamarck*.

Generic Character.—Shell orbicular, multilocular, spiral, convex, or conical, above ; flat, radiated, and tubercular beneath ; aperture marginal and trigonal.

Rotulites trochidiformis.—THE TROCHUS-SHAPED ROTULITES.

Plate LXXXIII. fig. 16.

Shell conoid ; volutions carinated ; lower one granulated. Fossil at Grignon.

TRIBE IV.—SPHERULACEA.

Shell globular, spheroidal, or oval ; with the volutions mutually enveloping, or the cells contiguous, and forming a tunic.

Genus 20.—MELONIA.—*Lamarck*.

Generic Character.—Shell subspherical, multilocular ; spire central ; volutions contiguous, convolute, tuniciform ; cells numerous, narrow ; septa imperforate.

Melonites sphaeroidea.—THE ROUND MELONIA.

Plate LXXXIII. fig. 17.

Entirely globular, and divided by compressed ribs. Fossil.

Genus 21.—GYROGONA.—*Lamarck*.

Generic Character.—Shell spherical, concave within, composed of linear, curved, canaliculate pieces ; the external surface with carinated, parallel, partly transverse ribs, and bound at the last volution ; aperture round, terminated by a small round shell.

Gyrgonites medicaginula.

Somewhat spherical, with transverse keels, and a spiral extremity. Fossil at Montmorency.

Genus 22.—MILIOLA.—*Lamarck*.

Generic Character.—Shell transverse, ovate-globular, or elongated, multilocular ; having transverse cells surrounding the axis,

and alternately surmounting each other; aperture very small, orbicular or oblong, situated at the base of the last volution.

Miliola ovata.—THE OVAL MILIOLA.

Plate LXXXIII. fig. 18.

Ovate, small, with an oblong-ovate aperture. Fossil at Grignon.

TRIBE V.—CRISTACEA.

Shell semidiscoid, with an eccentric spire.

Genus 23.—ORBICULINA.—*Lamarch*.

Generic Character.—Shell subdiscoid, multilocular; spire eccentric; volutions contiguous and compound; chambers short and numerous; septa imperforate.

Orbiculina uncinata.—THE ONE SINUSED ORBICULINA.

Plate LXXXIII. fig. 19.

Spirally striated, and the volutions separated by a deep sinus. Fossil.

Genus 24.—CRISTELLARIA.—*Lamarch*.

Generic Character.—Shell semi-discoidal, multilocular; chambers contiguous and simple, progressively enlarging; spire eccentric, subulate; septa imperforate.

Cristellaria squammula.—THE SCALED CRISTELLARIA.

Plate LXXXIII. fig. 20.

Shell externally covered with minute scale-like marks. Fossil.

Genus 25.—RENULINA.—*Lamarch*.

Generic Character.—Shell kidney-shaped, flat, sulcated, and multilocular; volutions linear, contiguous, the second curved, the last lengthened; the axis marginal.

Renulites opercularis.—THE LID-SHAPED RENULINA.

Plate LXXXIII. fig. 21.

Semilunar flat, with arcuated concentric ridges. Fossil at Grignon.

TRIBE VI.—LITUOLACEA.

Shell somewhat spiral; the last volution continuous in a straight line.

Genus 26.—LITUOLA.—Lamarck.

Generic Character.—Shell multilocular, partially spiral and discoid; volutions contiguous, the last terminating in a straight line; chambers irregular; septa simple and transverse, the last one perforated with from three to six orifices.

Lituolites nautiloidea.—THE NAUTILUS-SHAPED LITUOLA.

Plate LXXXIII. fig. 22.

Discoid, tailed, ribbed; septa with six perforations. Fossil at Mendon.

Genus 27.—SPIROLINA.—Lamarck.

Generic Character.—Shell multilocular, partly spiral and discoid; volutions contiguous, the last one terminating in a straight line; septa straight, perforated by a tube.

Spirolina clavata.—THE CLUB-SHAPED SPIROLINA.

Plate LXXXIII. fig. 23.

Club-shaped, spiral, smooth, ending in a lengthened erect body. Fossil.

Genus 28.—SPIRULA.—Lamarck.

Generic Character.—Shell even, thin, subpellucid, multilocular, spiral, discoid; the volutions apart with a straight termination; septa transverse, and equidistant, externally concave, with an interrupted lateral syphon; aperture round.

Spirula Peronii.—PERON'S SPIRULA.

Plate LXXXIII. fig. 24.

Pale sulphur-yellow, very fragile, horn-shaped; diameter about one inch. Inhabits the West Indian seas.

TRIBE VII.—ORTHOCERATA.

Shell straight, or nearly so; without any spiral volutions.

Genus 29.—CONILITES.—Lamarck.

Generic Character.—Shell conical, straight, slightly inflected ; outer crust thin, by which the nucleus is invested ; nucleus somewhat separable, multilocular, and divided by transverse septa.

Conilites pyramidata.—THE PYRAMIDAL CONILITES.

Plate LXXXIII. fig. 25.

Pyramidal ; with the concave bands contracted. Fossil.

Genus 30.—HIPPURITES.—Lamarck.

Generic Character.—Shell conical-cylindrical, straight, or somewhat arcuated, multilocular, with transverse septa ; having a lateral internal channel formed by two parallel, longitudinal, and obtuse ridges ; the last chamber closed by an operculum.

Hippurites curvo.—THE BENT HIPPURITES.

Plate LXXXIII. fig. 26.

Conical, curved, rough ; lower part truncated and flat.

Genus 31.—NODOSARIA.—Lamarck.

Generic Character.—Shell elongated, erect, or smooth, and slightly arcuated, subconic, nodose, consisting of a series of spherical volutions ; the transverse septa perforated.

Nodosaria radicula.—THE SHINING NODOSARIA.

Plate LXXXIII. fig. 27.

Erect, oblong, and attenuated ; with five globular volutions. Two lines long. Inhabits the Adriatic.

Genus 32.—ORTHOcera.—Lamarck.

Generic Character.—Shell elongated, straight, or a little arcuated, subconical ; ribbed, and longitudinal, external grooves ; chambers formed by transverse septa, perforated by a tube, which is either central or marginal.

Orthocera Raphanus.—THE RADISH-ROOT ORTHOCERA.

Plate LXXXIII. fig. 28.

Erect, conically elongated, with longitudinal continuous ribs ; white. Inhabits the Mediterranean sea.

Genus 33.—BELEMNITES.—Lamarck.

Generic Character.—Shell straight, conical, elongated, capable of being separated into two parts, the outer one a solid sheath, produced above and excavated with a conical cell beneath; the inner nucleus conical, and multilocular, divided by numerous transverse septa, perforated by a central tube.

Belemnites subconicus.—THE SUBCONIC BELEMNITES.

Plate LXXXIII. fig. 29.

Lower part somewhat cylindrical; the upper part conical and attenuated. Fossil, found in Britain in chalk marl.

ORDER III.—TRACHELIPODA.

Posterior part of the body spirally convolute, separated from the feet, and constantly enveloped in a shell; foot free, depressed, attached to the lower base of the neck, on the anterior part of the body, and forming a member of locomotion; shell spiral, and enveloping.

SECTION I.—ZOOPHAGOUS TRACHELIPODA.

The animals are entirely marine, having a protruding syphon, and respiring water only, which reaches the branchiæ by this syphon; they are devoid of maxillæ; provided with a retractile proboscis, and feed on other animals.

TRIBE I.—INVOLUTE.

Shell destitute of a canal, but having its aperture notched or effuse at the base, and its volutions compressed, and convoluted in such a manner as the external one nearly envelopes the others.

Genus 1.—CONUS.—Linnaeus.

Generic Character.—Shell turbinate, aperture longitudinal, linear, entire, narrow, and effuse at the base; pillar smooth, destitute of teeth; shape of a reversed cone.

Conus generalis.—THE GENERAL CONE.

Plate LXXXIV. fig. 1.

Shell oblong, turbinate, with reddish-brown, or orange clouds, and interrupted fillets; spire marginated. Two and a half inches long. Inhabits the Indian seas.

There are two sections of this genus.—I. Shells coronate, or provided with knobs, round the edges of the spiral volutions.—II. Shell not coronate.

Genus 2.—OLIVA.—*Lamarck*.

Generic Character.—Shell subcylindrical, convolute, smooth, and glabrous; spire short, with canaliculated sutures; aperture longitudinal, emarginate at the base; columella obliquely striated, or plaited.

Oliva cruenta.—THE BLOODY OLIVE.

Plate LXXXIV. fig. 2.

Shell pale fawn-coloured with large triangular spots of purple, edged with deeper fawn; two dark brown spots on the edge of the outer lip; suture of the spire deep; pillar plaited to nearly the top. One and a half inch long. Inhabits the Indian seas.

Genus 3.—ANCILLARIA.—*Lamarck*.

Generic Character.—Shell oblong, subcylindrical; spire short, not caniculate at the sutures; aperture longitudinal, effuse and hardly emarginate at the base; lower part of the columella with an oblique varix.

Ancillaria cinnamonea.—THE CINNAMON ANCILLARIA.

Plate LXXXIV. fig. 3.

Shell chestnut-brown, with white bands above; varice of the columella reddish, and somewhat striated. One inch long. Inhabits Trincomalee.

Genus 4.—TEREBELLUM.—*Lamarck*.

Generic Character.—Shell convolute, subcylindrical; apex pointed; aperture longitudinal, narrow above; base emarginate; columella smooth, truncated beneath.

plicated; the plaits being parallel and transverse, the lower ones smallest; pillar lip thin and adnate.

Mitra pontificalis.—THE PONTIFICAL MITRA.

Plate LXXXIV. fig. 9.

Turreted, ovate; covered with a yellow-olive epidermis, beneath which are interrupted fillets of orange spots; spire crowned with tubercles. Two and a half inches long. Inhabits the Chinese sea.

Genus 11.—COLOMBELLA.—*Lamarck*.

Generic Character.—Shell oval; spire short; base of the aperture more or less emarginate, and destitute of a canal; columella plicated; outer lip with an internal prominence, which contracts the aperture.

Colombella mercatoria.—THE MERCHANT COLOMBELLA.

Plate LXXXIV. fig. 10.

Ovate, white, sulcated, transversely clouded with brown, or yellow-orange; outer lip with internal dentations. An inch long. Inhabits the West Indian seas.

TRIBE III.—PURPURIFERA.

Shell with a short canal posteriorly ascending, or with an oblique notch at the base of the aperture, directed backwards.

Sub-DIVISION 1.—Having an oblique notch directed backwards.

Genus 12.—TEREBRA.—*Lamarck*.

Generic Character.—Shell elongated, turreted, acuminate; aperture longitudinal, several times shorter than the spire, notched at its posterior base; base of the columella contorted and oblique.

Terebra vittata.—THE FILLETED TEREBCRA.

Plate LXXXIV. fig. 12.

Pale fawn-coloured, smooth; body, and volutions transversely striated at the top, and with transverse purplish fillets, occupying nearly its lower half. One inch long. Inhabits the Indian ocean.

Genus 13.—EBURNA.—Lamarck.

Generic Character.—Shell ovate or elongated; the outer lip simple; aperture longitudinal; emarginated at the base; columella umbilicated above, with a canal below the umbilicus.

Eburna Zeylanica.—THE NEW ZEALAND EBURNA.

Plate LXXXIV. fig. 13.

Smooth, white, with irregular large purplish spots; apex acute, tipped with lilac; sutures with an elevated line. Two and a half inches long. Inhabits the South seas.

Genus 14.—BUCCINUM.—Linnæus.

Generic Character.—Shell ovate, or ovato-conical; aperture longitudinal, with the base emarginate; no canal; columella not depressed, and turgid above.

Buccinum undatum.—THE WAVED BUCCINUM.

Plate LXXXIV. fig. 14.

Ovato-conical, ventricose; obliquely sulcated, striated transversely and longitudinally; covered with a yellow-olivaceous epidermis; volutions convex; aperture white or yellow. Four inches long. Inhabits the European seas.

Genus 15.—DOLIUM.—Lamarck.

Generic Character.—Shell thin, ventricose, inflated; frequently subglobose, very rarely oblong; transversely ribbed; outer lip dentated or crenated; aperture longitudinal, emarginate at the base.

Dolium perdix.—THE PARTRIDGE DOLIUM.

Plate LXXXIV. fig. 15.

Ovate, oblong, thin, reddish-brown, clouded and spotted with white; thickly ribbed and convex. Four inches long. Inhabits the Tropical seas.

Genus 16.—HARPA.—Lamarck.

Generic Character.—Shell ovate, more or less turgid; with longitudinal, parallel, compressed, inclined ribs; spire short; aperture longitudinal, emarginate below; without a canal; columella smooth, flattened, and acute at the base.

Terebellum subulatum.—THE AWL-SHAPED TEREHELLUM.

Plate LXXXIV. fig. 4.

Shell cylindrical, thin, and glossy; spire subulate; columella smooth, truncate at the base. One inch long. Inhabits the Indian seas.

Genus 5.—CYPRÆA.—*Linnæus*.

Generic Character.—Shell ovate or oblong-ovate, convex; margins involute; aperture longitudinal, narrow, dentate on both sides, effuse at the extremities; spire very small, generally hidden in the perfect shells.

Cypræa exanthema.—THE MEASLEY CYPRÆA.

Plate LXXXIV. fig. 8.

Oblong-ovate, brown, thickly studded with round eye-like white spots; dorsal line grayish; marginal teeth dark brown. Four inches long. Inhabits the West Indies.

Genus 6.—OVULA.—*Bruguiere*.

Generic Character.—Shell turgid, attenuated at both ends; margins convolute; aperture longitudinal, narrow, effuse at the extremities; the left margin without teeth.

Ovula oviformis.—THE EGG-SHAPED OVULA.

Plate LXXXIV. fig. 5.

Shell ovate, much inflated, ventricose in the centre, very glossy, extremely white; extremities prominent; mouth orange within. Four inches long. Inhabits the Indian seas.

TRIBE II.—COLUMELLARIA.

Without a canal at the base of the aperture, but having a sub-dorsal more or less distinct notch, and with folds or plaits on the columella.

Genus 7.—VOLVARIA.—*Lamarck*.

Generic Character.—Shell cylindrical, convolute; the spire hardly protruding; aperture narrow, nearly the whole length of the shell; columella with one or more folds near its base.

Volvaria cylindrica.—THE CYLINDRIC VOLVARIA.

Plate LXXXIV. fig. 11.

Shell cylindrical, white, with one plait on the columella. Half an inch long. Inhabits the British seas.

Genus 8.—MARGINELLA.—*Lamarck*.

Generic Character.—Shell oblong-ovate, smooth; spire short, outer lip with a marginal longitudinal varix; base slightly notched; columella plicated; folds nearly equal.

SECTION I.—Spire prominent.

Marginella cærulescens.—THE BLUISH MARGINELLA.

Plate LXXXIV. fig. 6.

Shell bluish-white; spire short, and acute; lip brownish purple within; columella with four plaits. One inch long. Inhabits the Indian ocean.

SECTION II.—Spire depressed.

Genus 9.—VOLUTA.—*Linnaeus*.

Generic Character.—Shell ovate, more or less ventricose; apex papillose; without a canal; columella plicate, the lower plaits larger and more oblique than the others; without columellar laminæ.

This genus is divided into four sections.—1. Shell ventricose; 2. shell ovate, spinous, or tubercular; 3. shell oval, and subtubercular; 4. shell elongated, ventricose, nearly fusiform.—The following illustrates section 2.

Voluta vespertilio.—THE BAT VOLUTE.

Plate LXXXIV. fig. 7.

Shell emarginated with acute spines on the volutions; summit slightly obtuse; columella four plaited. Three inches long. Inhabits the Indian seas.

Genus 10.—MITRA.—*Lamarck*.

Generic Character.—Shell turreted, or sub-fusiform, with an acute spire; base emarginate, without a canal; columella

Harpa rosea.—THE ROSEATE HARPA.

[Plate LXXXIV. fig. 16.

Oblong ovate, flesh-coloured, with roseate interrupted bands; ribs remote; columella of a fine rosy hue. Two inches long. Inhabits the Indian ocean.

Genus 17.—CONCHOLEPAS.—*Lamarck*.

Generic Character.—Shell ovate, inflated, semispiral; apex inclined obliquely towards the left lip; aperture very wide, longitudinal, oblique, provided with a notch beneath; right lip with two teeth at its base; aperture furnished with an oblong, thin, horny operculum.

Concholepas Peruvianus.—THE PERUVIAN CONCHOLEPAS.

Plate LXXXIV. fig. 17.

Three inches long, and very thick, an umber-brown back, and white inside. Inhabits the coasts of Peru.

Genus 18.—MONOCEROS.—*Lamarck*.

Generic Character.—Shell ovate; aperture longitudinal; emarginate at the base; a conical tooth at the base of the right lip.

Monoceros cingulatum.—THE BANDED MONOCEROS.

Plate LXXXIV. fig. 18.

Cylindrical; volutions flattened on their upper edges; with transverse spiral brown bands. Inhabits the coast of Malabar.

Genus 19.—PURPURA.—*Lamarck*.

Generic Character.—Shell ovate, smooth, tubular, or angular; aperture dilated, emarginate at the base, having a subcaniculate oblique sinus; columella depressed, ending below in a point.

Purpura Persica.—THE PERSIAN PURPURA.

Plate LXXXIV. fig. 19.

Transversely sulcate, and striated between the ridges; dark-burnt umber-brown; ridges cream-yellow, with distant spots of very dark umber-brown; upper ridge and the superior edges of the volutions mucronate; inside sulcate and striated. Inhabits the Isle of France.

Genus 20.—*RICINULA.*—*Lamarch.*

Generic Character.—Shell ovate, usually tubercular or spinous externally; aperture longitudinal, furnished with a short recurvate canal, terminated by an oblique notch; columella with unequal teeth; the interior of the right lip frequently obtruding on the aperture.

Ricinula horrida.—*THE RUGGED RICINULA.*

Plate LXXXIV. fig. 20.

External surface covered with strong, obtuse, black tubercles; the interstices being white and transversely striated; inside of both lips of a rich purple; outer lip with five triangular, grooved radii, between which, at their base, the margin is crenulated. One and a half inch long. Inhabits the East Indian seas.

Genus 21.—*CASSIS.*—*Lamarch.*

Generic Character.—Shell gibbous; aperture longitudinal, narrow, terminating in a short canal, abruptly reflected backwards; columella transversely plicated or rugose; outer lip usually dentated.

The genus consists of two subdivisions: 1. Spire with longitudinal varices. 2. Spire without varices.

Cassis arelola.—*THE PATCHED CASSIS.*

Plate LXXXIV. fig. 21.

Smooth, shining, white, with square orange tessellated spots; spire short and conical, with decussated striae; lower part of columella rugose. Two and a half inches long. Inhabits the Indian ocean.

Genus 22.—*CASSIDARIA.*—*Lamarch.*

Generic Character.—Shell abovate, or ovate-oblong; aperture longitudinal, narrow, terminating in an ascending curved canal; outer lip marginated, or folded back at the margin; inner lip covering the columella, generally rough, granular, tuberculate, or rugose.

Cassidaria Thyrræna.—*THE THYRÆAN CASSIDARIA.*

Plate LXXXIV. fig. 22.

Ovate, transversely grooved, reddish fulvous; volutions con-

vex; apex with one tubercle. Three inches and a half long. Inhabits the Mediterranean sea.

TRIBE IV.—ALATA.

Shell provided with a canal of greater or less extent, at the base of the aperture; the right lip changes its form as the animal advances in age, and is provided with a sinus at the lower part.

Genus 23.—STROMBUS.—*Linnæus*.

Generic Character.—Shell ventricose, base terminating in a short, truncated, emarginated canal; right lip dilating with age into a simple, entire wing, lobed or crenulated above, and provided with a sinus beneath, separated at the base from the canal or notch.

Strombus auris Dianæ.—DIANA'S EAR STROMBUS.

Plate LXXXIV. fig. 23.

Oblong-ovate; spire acute, tuberculated, and transversely striated; base recurved; outer lip thick; anterior lobe with a finger-like termination. Three inches and a quarter long. Inhabits the Indian ocean.

Genus 24.—PTEROCERA.—*Lamarch*.

Generic Character.—Shell oblong-ovate, ventricose, terminating in a lengthened canal; outer lip dilating with age into an expanded, rayed, or digitated wing, with a sinus near the base; spire short.

Pterocera chiragra.—THE KNOTTY PTEROCERA.

Plate LXXXIV. fig. 24.

Ovate, tuberculated, with six digitated, canaliculated rays, which are closed over in the adult shell; outer lip internally striated. Six inches and a half long, exclusive of the digitated lobes. Inhabits the Indian ocean.

Genus 25.—ROSTELLARIA.—*Lamarch*.

Generic Character.—Shell fusiform or sub-turritid, terminated below by a beaked canal; outer lip entire in some species, and dentated in others, more or less dilated by age; with a sinus near the canal.

Rostellaria pes pellicani.—THE PELICAN'S FOOT ROSTELLARIA.
Plate LXXXIV. fig. 25.

Turrited, flesh-coloured or white; body and volutions longitudinally ribbed, and crowned with papillæ; base of body papillose. One inch and a half long. Inhabits the European seas.

TRIBE V.—CANALIFERA.

Shell with a canal of greater or less length, situated at the base of the aperture; the outer lip differing little in the young and adult state.

SUB-DIVISION I.—Having a permanent varix on the outer lip, and varices on the spire.

Genus 26.—TRITON.—*Lamarck*.

Generic Character.—Shell ovate or oblong, with a canalculated base; having alternate or nearly solitary varices, which are longitudinally prolonged; aperture oblong, provided with an operculum.

Triton variegatum.—THE VARIEGATED TRITON.

Plate LXXXIV. fig. 26.

Elongated, conical, tubiform; suture of the spire crenulated; pillar tip grooved obliquely; pale purple, elegantly clouded and spotted with brown. Sixteen inches long. Inhabits the Indian and American seas.

Genus 27.—MUREX.—*Linnaeus*.

Generic Character.—Shell ovate or oblong, with a canalculated base; furnished with rough spinous or tuberculated varices, in each volution of the spire, the lower ones uniting with those above forming continuous rows; aperture with a corneous operculum.

Murex spiralis.—THE SPIRAL MUREX.

Plate LXXXIV. fig. 27.

Body roundish; separated from the spire by a narrow ridge; spire depressed; upper volutions rounded, and terminating in an obtuse apex; canal very long and curved; flesh-coloured, sub-

striate, with remote brown irregular spots. Three inches long. Inhabits the Chinese seas.

Genus 28.—**RANELLA.**—*Lamarck.*

Generic Character.—Shell oval or oblong; sub-depressed with distichous varices, and canaliculated at the base; aperture rounded or ovate; varices straight or oblique, situated at intervals of half a volution, forming a continuous longitudinal row on each side.

Ranella spinosa.—**THE PRICKLY RANELLA.**

Plate LXXXV. fig. 1.

Ovate, depressed, with acute, short, distinct, muricated tubercles; fawn-coloured; varices lateral, with elongated spines; beak sulcated; outer lip internally crenated. Two inches and an eighth long. Inhabits the Indian ocean.

Genus 29.—**STRUTHIOLARIA.**—*Lamarck.*

Generic Character.—Shell ovate; spire produced; aperture oval, with a sinus, terminated at the base by a very short, straight canal without any notch; pillar lip callous, spreading; margin of outer lip sinuous, with an exterior ridge.

Struthiolaria nodulosa.—**THE NODULOUS STRUTHIOLARIA.**

Plate LXXXV. fig. 2.

Ovate, grooved and striated transversely; top of volutions flattened and nodulous; cream-yellow, with undulated brownish-yellow longitudinal lines; lip yellow-orange within. Three inches long. Inhabits New Zealand.

Sub-DIVISION II.—Without a constant ridge on the outer lip.

Genus 30.—**PYRULA.**—*Lamarck.*

Generic Character.—Shell sub-pyriform; base with a canal, ventricose above, destitute of external ridges; spire short, sometimes obtuse; columella smooth; outer lip without a notch.

Pyrula ficus.—**THE FIG PYRULA.**

Plate LXXXV. fig. 3.

Spire very short; volutions rounded above; yellow-brown,

spotted with dark brown ; and covered with decussated striæ. Three inches long. Inhabits the Indian ocean.

Genus 31.—FUSUS.—Lamarck.

Generic Character.—Shell fusiform or sub-fusiform, with a canal at the base ; middle or lower part ventricose, without varices ; spire produced ; margin of the outer lip without a notch ; columella smooth ; aperture produced, with a horny operculum.

Fusus corneus.—THE HORNY FUSUS.

Plate LXXXV. fig. 5.

Elongated, with eight convex volutions, striated spirally, and covered by an olivaceous epidermis ; beak long, oblique. Three inches long. Inhabits the seas of Northern Europe.

Genus 32.—FASCIOLARIA.—Lamarck.

Generic Character.—Shell sub-fusiform, with a canal at its base ; without varices ; columella with two or three oblique plaits.

Fasciolaria trapezium.—THE QUADRANGULAR FASCIOLARIA.

Plate LXXXV. fig. 6.

Ventricose, obtusely angled ; volutions nodulous ; reddish fawn-coloured, with transverse, double, slightly undulated lines ; inside of aperture with reddish striæ. Six inches long. Inhabits the Indian ocean.

Genus 33.—CANCELLARIA.—Lamarck.

Generic Character.—Shell oval or turritid ; base of the aperture sub-canalculated ; canal very short, almost none ; columella plicated, the plaits varying in number ; usually transverse ; lip internally furrowed.

Cancellaria reticulata.—THE RETICULATED CANCELLARIA.

Plate LXXXV. fig. 4.

Oval, strong, ventricose, with distant, coarse, reticulated striæ ; sometimes with yellow or orange bands ; pillar with three plaits ; aperture white. Two inches long. Inhabits the Atlantic ocean.

Genus 34.—TURBINELLA.—Lamarck.

Generic Character.—Shell turbinated or sub-fusiform ; with a canal at the base ; columella with from three to five oblique, transverse, and compressed plaits.

Turbinella pyrum.—THE PEAR-SHAPED TURBINELLA.

Plate LXXXV. fig. 8.

Pear-shaped ; yellowish-white, with irregular reddish-brown spots ; spire short, mucronate ; apex mammilliform ; beak long ; columella with four plaits ; in adult specimens, the shell is covered with a very thick opaque yellow-brown epidermis. Six inches long. Inhabits the Indian ocean.

Genus 35.—PLEUROTOMA.—Lamarck.

Generic Character.—Shell turritid or fusiform, terminated below by a straight canal, of greater or less length ; outer lip with a notch or fissure at the upper part.

Pleurotoma nodifera.—THE JAVANESE PLEUROTOMA.

Plate LXXXV. fig. 7.

Fusiform, turritid ; volutions somewhat angulated, upper ones smooth ; under volutions and body transversely striated with angulated oblique nodules at the suture ; outer lip deeply crenulated, with a large notch ; reddish-yellow. One inch and a half long. Inhabits the seas around Java.

Genus 36.—CERITHIUM.—Bruguiere.

Generic Character.—Shell turritid ; aperture oblong, oblique, terminated at the base by a short, truncated, recurved canal, without a notch ; the outer lip with a groove at its upper extremity ; aperture provided with a small horny operculum.

Cerithium semigranulosum.—THE SEMIGRANULATED CERITHIUM.

Plate LXXXV. fig. 9.

Fusiform, turritid, apex acute ; transverse minute striae, and sulcated granulations ; the suture with double spiral rows of large granules ; colour reddish-brown. One inch and a half long. Inhabits the seas of New Holland.

SECTION II.—PHYTIOPHAGA.

Without a projecting syphon, generally respiring by an orifice; provided with jaws, and usually feed on vegetable substances; shell having the aperture entire, and destitute of a notch or canal.

TRIBE I.—TURBINACEA.

Shell turrit or conical, with an oblong or rounded aperture, not expanding, and the margin disunited.

Genus 37.—TURRITELLA.—*Lamarck.*

Generic Character.—Shell turrit or conical; aperture rounded, entire; margin disunited above; the outer lip with a slight sinus, and the aperture furnished with a horny operculum.

Turritella terebra.—THE AUGUR TURRITELLA.

Plate LXXXV. fig. 11.

Greatly turrit or conical, with acute, transverse striae; yellowish-brown; apex usually reddish. Two inches long. Inhabits the European seas.

Genus 38.—PHASIANELLA.—*Lamarck.*

Generic Character.—Shell ovate or conical, solid; aperture entire, longitudinally ovate; the outer lip disunited above, sharp-edged, but not reflected; columella smooth, compressed, and attenuated at the base; aperture provided with a calcareous or horny operculum.

Phasianella pullus.—THE CHILDISH PHASIANELLA.

Plate LXXXV. fig. 12.

Smooth, glossy; volutions inflated; skin coloured with spots of crimson or rich reddish-brown. One quarter of an inch long. Inhabits the coast of Britain.

Genus 39.—PLANAXIS.—*Lamarck.*

Generic Character.—Shell ovate or conic, solid; aperture ovate, or somewhat elongated; columella depressed and truncated at the base, separated from the outer lip by a compressed sinus; lip interiorly sulcated, having a callosity running under the superior portion.

Planaxis sulcata.—THE FURROWED PLANAXIS.

Plate LXXXV. fig. 16.

Imperforate, transversely furrowed; grayish-white, and spotted with black, forming oblique longitudinal fasciæ; outer lip internally crenulated and striated. One inch long. Inhabits the American seas.

Genus 40.—TURBO.—*Linnæus*.

Generic Character.—Shell conoid, or sub-turriculated; aperture entire, round, margin of outer lip disunited; columella arcuated, depressed, but not truncated at the base; aperture provided with a testaceous operculum.

Turbo setosus.—THE BRISTLY TURBO.

Plate LXXXV. fig. 17.

Thick, transversely and deeply sulcated, and longitudinally striated; spire short; volutions rounded; lip crenulated; variegated with white, green, and brown; inside pearlaceous. Two inches long. Inhabits the Indian seas.

Genus 41.—MONODONTA.—*Lamarch*.

Generic Character.—Shell ovate or conoid; aperture round and entire; outer lip disunited from the body at top; columella arcuated and truncated at the base; aperture provided with an operculum.

Monodonta coronaria.—THE THICK-LIPPED MONODONTA.

Plate LXXXV. fig. 10.

Covered with numerous, small, scabrous, acute, tubercles; outer lip very thick; apex blunt, white; the columella reddish. One inch and a quarter long. Inhabits the Chinese seas.

Genus 42.—TROCHUS.—*Linnæus*.

Generic Character.—Shell conical; spire elevated, sometimes abbreviated; aperture transversely depressed; margin of outer lip disunited from the body at the upper part; columella arcuated, more or less oblique at the base; aperture provided with a horny operculum.

Trochus Zizyphinus.—THE MAGRICAN TROCHUS.

Plate LXXXV. fig. 2A

With strong transverse striae; colour livid, with undulated streaks of reddish flesh-colour, or brownish carnation. One inch long. Inhabits the European seas.

Genus 43.—ROTELLA.—*Lamarck*.

Generic Character.—Shell orbicular, glossy, destitute of epidermis; spire short, subconic; lower parts convex and callous; aperture half round.

Rotella vestrarius.—THE KINDRED ROTELLA.

Plate LXXXV. fig. 18.

Pale skin-coloured, or citron-coloured, the upper part of body and spire spotted with dark brown. Half an inch long. Inhabits the Indian Ocean.

Genus 44.—SOLARIUM.—*Lamarck*.

Generic Character.—Shell orbicular, in the form of a depressed cone; largely umbilicated; internal margins of the volutions, which are visible in the umbilicus, crenulated; aperture wide; mouth quadrangular, destitute of a columella.

Solarium perspectivum.—THE PERSPECTIVE SOLARIUM.

Plate LXXXV. fig. 23.

Cream-yellow, with brown or chestnut, and white bands on the sutures of the volutions; umbilicus ample, and crenulated. Two and a half inches broad. Inhabits the Indian Ocean.

TRIBE II.—SCALARIDES.

Shell devoid of plaits or folds on the columella; margins of the aperture united in a circular form.

Genus 45.—DELPHINULA.—*Lamarck*.

Generic Character.—Shell subdiscoid or conical, umbilicated, solid; volutions of the spire rough or angular; aperture entire, round, sometimes trigonal, with the sides united, and generally provided with a fringe, or a thick marginal ridge; spire depressed.

Delphinula laciniata.—THE FRINGED DELPHINULA.

Plate LXXXV. fig. 22.

Umbilicus large, surrounded by large vaulted scales, in spiral rows; also with strong waved spiral striæ; brownish-red, variegated with white. Two inches long. Inhabits the Indian seas.

Genus 46.—SCALARIA.—*Lamarck*.

Generic Character.—Shell subturritid, with longitudinal, elevated, subacute, interrupted ribs; aperture rounded; margins united in a circle, and a reflected ridge.

Scalaria pretiosa.—THE WENTLETRAP, OR PRECIOUS SCALARIA.

Plate LXXXV. fig. 20.

Conical, smooth, cream-yellow; volutions deeply divided; spire detached, with a deep umbilicus; volutions connected by longitudinal ribs; body extremely ventricose. One and a half inch long. Inhabits the Indian Ocean.

Genus 47.—VERMETUS.—*Lamarck*.

Generic Character.—Shell thin, tubulose, loosely spiral in the lower part, three or four upper volutions, regularly spiral; attached to other substances by the apex of the spire; aperture orbicular, margins united, and provided with an operculum.

Vermetus lumbricalis.—THE WORM-LIKE VERMETUS.

Plate LXXXV. fig. 24.

Variouly twisted; reddish-brown, sometimes clouded with darker brown. Two to four inches long. Inhabits the African seas.

TRIBE III.—PLICACEA.

Shell with the aperture somewhat contracted, and the columella plaited.

Genus 48.—PYRAMIDELLA.—*Lamarck*.

Generic Character.—Shell turritid, destitute of epidermis; aperture entire, semi-ovate, the outer lip with a sharp edge; columella produced at the base, and subperforated, provided with three transverse plaits.

Pyramidella terebellum.—THE WIMBLE PYRAMIDELLA.

Plate LXXXV. fig. 26.

Smooth, glossy, white, with reddish-brown fasciæ; columella recurved; inside of the lip smooth. One and one-fourth inches long. Inhabits the American seas.

Genus 49.—TORNATELLA.—*Lamarck*.

Generic Character.—Shell convolute, ovate-cylindrical, usually transversely striated, and destitute of epidermis; aperture oblong, entire, with margin of the outer lip acute; one or several folds at the base of the columella.

Tornatella fasciata.—THE BANDED TORNATELLA.

Plate LXXXV. fig. 27.

Covered with fine transverse striæ; spire produced, apex acute; aperture straitened, columella with one plait; purplish-red, with two white transverse fasciæ. Inhabits the coast of Britain.

TRIBE IV.—MACROSTOMA.

Shell auriform, with the aperture very wide, and the margins disunited; without any columella or operculum.

Genus 50.—HALIOTIS.—*Linnæus*.

Generic Character.—Shell ear-shaped, usually depressed; spire short, sometimes depressed, and nearly lateral; aperture extremely large, oblong-ovate, and entire in the adult state; disc perforated with holes, disposed in a line parallel to the left margin, which commences by a notch.

Haliotis asinina.—THE ASSININE HALIOTIS.

Plate LXXXV. fig. 28.

Internal margin very broad, inside pearly, smooth, shining, iridescent, reflecting green, pink, and orange; back clouded with brown and green, and striated longitudinally, oblique; spire very short. Two and a half inches long. Inhabits the sea at Molucca.

Genus 51.—STOMATIA.—*Lamarck*.

Generic Character.—Shell ear-shaped, imperforate, spire pro-

minent; aperture entire, oblong, and large; right lip elevated as much as the pillar; back with transverse tuberculated ribs.

Stomatia phymotis.—THE TUMOURED STOMATIA.

Plate LXXXV. fig. 29.

Ovate-oblong, back convex, striated, nodulous, and white; spire small, contorted; lip thin and acute. Three and a fourth inches long. Inhabits the Indian Ocean.

Genus 52.—STOMATELLA.—*Lamarck*.

Generic Character.—Shell orbicular or oblong, ear-shaped, imperforate; aperture entire, large, elongated; outer lip effuse, dilated, and open.

Stomatella imbricata.—THE IMBRICATED STOMATELLA.

Plate LXXXV. fig. 30.

Suborbicular, convex, somewhat depressed, rough, having thick-set transverse ribs, covered with imbricated scales; grayish-brown. One inch and a half long. Inhabits the Indian Ocean.

Genus 53.—SIGARETUS.—*Lamarck*.

Generic Character.—Shell subauriform, suborbicular; outer lip short and spirally intorted; aperture entire, very expanding, ovate-oblong; the margins disunited.

Sigaretus concavus.—THE CONCAVE SIGARETUS.

Plate LXXXV. fig. 25.

Ovate, back convex, covered with transverse undulated striae; reddish-yellow, spire white, somewhat prominent; aperture expanded, concave; umbilicus deepish. Inhabits the Indian Ocean.

TRIBE V.—JANTHINA.

Animal capable of raising itself to the surface of the water, and swimming.

Genus 54.—JANTHINA.—*Lamarck*.

Generic Character.—Shell ventricose, conical, thin, and pellucid; aperture triangular; columella straight, produced beyond

the base of the outer lip ; the lip, or middle sinus, emarginate ; aperture without an operculum.

Ianthina communis.—THE COMMON IANTHINA.

Plate LXXXV. fig. 19.

Extremely fragile, of a beautiful violet hue ; aperture triangular, with a small notch on the margin of the outer lips. One inch long. Inhabits the Atlantic and Mediterranean.

TRIBE VI.—NERITACEA.

The shells are both marine and fresh-water ; semiglobular or oval ; destitute of a columella, and the aperture edged and transverse ; and provided with an operculum.

Genus 55.—NATICA.—*Lamarck*.

Generic Character.—Shell subglobose, umbilicated ; aperture entire, and half rounded ; outer lip oblique, without teeth ; with a callosity, which partly covers the umbilicus, and some species entirely covers it ; outer lip sharp, smooth within ; aperture provided with an operculum.

Natica canrena.—THE CANRENA NATICA.

Plate LXXXV. fig. 15.

Subglobular, smooth ; fawn-coloured, with bands and interrupted rays of reddish-brown, and zigzag lines and streaks ; base of body and inner lip white, deeply umbilicated ; spire a little prominent. One and three-fourth inches long. Inhabits the West Indian Ocean.

Genus 56.—NERITA.—*Lamarck*.

Generic Character.—Shell solid, semiglobose, flattened below, without an umbilicus ; aperture semiorbicular and entire ; inner lip flattened, septiform, acute, and frequently dentated or crenated on the inner edge of the lip ; outer lip obtuse, and often provided internally with teeth.

Nerita peloronta.—THE MONSTROUS NERITA.

Plate LXXXV. fig. 13.

Thick, transversely sulcated ; ash-coloured, or reddish-yellow, with variously coloured bands ; inner lip with two crenulations.

outer lip with two deep notches near its internal upper edge, and a bloody mark at the base of the inner teeth. One inch long. Inhabits the seas of South America.

Genus 57.—NERITOIDES.—*Brown.*

Generic Character.—Shell strong, thick, subrotund; spire depressed; aperture nearly round; lip almost continuous, having a slight groove only at its junction with the body; no umbilicus.

Neritoides litteralis.—THE SHORE NERITOIDES.

Plate LXXXVI. fig. 24.

Smooth, covered with an olive-green, yellow, brown, or other coloured epidermis, sometimes beautifully banded or chequered beneath it; inside generally purplish-brown; body very large; spire very short and depressed. Five-eighths of an inch long. Inhabits the shores of Northern Europe.

Genus 58.—NERITINA.—*Lamarck.*

Generic Character.—Shell thin, semiglobose, or ovate, flattened below; without an umbilicus; aperture semicircular; inner lip flattened, and reflected on the columella, sometimes slightly crenated; outer lip destitute of teeth or crenulations on its internal face; aperture provided with an operculum, having a lateral point.

Neritina fluviatilis.—THE FRESH-WATER NERITINA.

Plate LXXXV. fig. 14.

Shell small, oval; back convex, smooth, white, variously speckled with black, or dark brown; spire inclined, lateral; lip slightly denticulate. One third of an inch long. Inhabits the rivers and streams of Europe.

Genus 59.—NAVICELLA.—*Lamarck.*

Generic Character.—Shell elliptical or oblong; convex above, concave beneath; spire erect, the margin always inflected; outer lip flattened, acute, angulated, and destitute of teeth; aperture provided with a solid flat operculum, having a lateral point.

Navicella elliptica.—THE OVAL NAVICELLA.

Plate LXXXVI. fig. 1.

Smooth, shining, spotted and streaked with purple, blue, or brown; covered with an olivaceous epidermis; spire curved, prominent, extending beyond the margin. One inch long. Inhabits rivers in the Isle of France.

TRIBE VII.—PERISTOMIDA.

Shell conoid or subdiscoïd, with the margins of the aperture united; aperture protected by an operculum; fluviatile, and the animal respiring in water.

Genus 60.—AMPULLARIA.—*Lamarck*.

Generic Character.—Shell globular, ventricose, base umbilicated; left lip without a callosity; aperture oblong, entire; margins united; outer lip acute, but not reflected; with an operculum.

Ampullaria Guyanensis.—THE GUIANA AMPULLARIA.

Plate LXXXVI. fig. 2.

Globular, thick, with unequal longitudinal striæ; covered with a fuscous-brown epidermis; inside golden-yellow. Three inches in diameter. Inhabits the rivers of Guiana.

Genus 61.—PALUDINA.—*Lamarck*.

Generic Character.—Shell conoid; volutions rounded or convex; aperture subrotund, ovate, or oblong, angulated above; margins of outer and inner lips united, with edges acute, but not reflected; provided with an orbicular horny operculum.

Paludina vivipara.—THE VIVIPAROUS PALUDINA.

Plate LXXXVI. fig. 3.

Thin, ovate, ventricose, wrinkled longitudinally; three brown bands on the body, covered with an olivaceous epidermis. One and a half inch long. Inhabits the rivers of Europe.

Genus 62.—VALVATA.—*Lamarck*.

Generic Character.—Shell discoïd or conoid; volutions cylindrical, unbilicated; margins united and acute; operculum orbicular.

Valvata piscinalis.—THE POND VALVATA.

Plate LXXXVI. fig. 4.

Globular, conoid, somewhat trochus-shaped, deeply umbilicated; apex obtuse; longitudinally wrinkled; covered with a greenish-yellow epidermis. One-fourth of an inch long. Inhabits the rivers and lakes of Europe.

TRIBE VIII.—MELANIDES.

Fluviatile operculated shells; with the margins of the aperture disunited; the outer lip edged; the animals do not respire in the water, and are provided with two tentacula.

Genus 63.—PIRENA.—*Lamarck*.

Generic Character.—Shell turritid; aperture longitudinal; outer lip acute, with a distinct sinus at the base, and another at its junction with the body; base of the columella turned towards the right; provided with a horny operculum.

Pirena terebralis.—THE DARK PIRENA.

Plate LXXXVI. fig. 7.

Subulate, longitudinally striated; outer lip expanded; covered with a deep black-brown epidermis; aperture white. Three inches long. Inhabits the rivers in India.

Genus 64.—MELANOPSIS.—*Lamarck*.

Generic Character.—Shell turritid; aperture ovate-oblong, entire; columella with a callosity above, truncated at the base, and incurvated; the outer lip separated from the inner one by a sinus; aperture with a horny operculum.

Melanopsis lavigata.—THE POLISHED MELANOPSIS.

Plate LXXXVI. fig. 28.

Ovate, conical, smooth, of a chestnut-colour. Three-fourths of an inch long. Inhabits the rivers of the Archipelago.

Genus 65.—MELANIA.—*Lamarck*.

Generic Character.—Shell turritid; aperture entire, ovate or oblong; effuse at the base; columella smooth, and incurvated; aperture with a horny operculum.

Melania amarula.—THE CROWNED MELANIA.

Plate LXXXVI. fig. 8.

Ovate-oblong, thick ; longitudinally wrinkled ; transversely striated at the base of the body ; upper margin of the volutions crowned with triangular tubercles, from which emanate ciliated spines ; colour deep chestnut, covered with a black epidermis. One and a half inch long. Inhabits the rivers of India.

TRIBE IX.—LYMNÆCEA.

The animals of this tribe are amphibious, usually without an operculum ; and having flattened tentacula ; shell spiral, generally smooth on the external surface ; the margin of the outer lip is always acute, and not reflected.

Genus 66.—LYMNÆA.—*Bruguere*.

Generic Character.—Shell oblong, sometimes turritid ; spire produced ; aperture entire, oblong ; the outer lip acute ; the lower part of the inner lip rising on the columella, and forming an oblique plait ; destitute of an operculum.

Lymnæa stagnalis.—THE POND LYMNÆA.

Plate LXXXVI. fig. 9.

Oblong, body ventricose ; spire very acute and subulate ; aperture large and ovate ; horn-coloured. Two inches long. Inhabits the ditches and ponds of Europe.

Genus 67.—PHYSA.—*Draperna*.

Generic Character.—Shell generally sinistral, convolute, oval, or oblong ; spire prominent ; aperture longitudinal, contracted above ; columella twisted ; outer lip very thin, acute, partly obtruding above the plane of the opening ; destitute of an operculum.

Physa fontinalis.—THE FOUNTAIN PHYSA.

Plate LXXXVI. fig. 6.

Volutions reversed, oval, diaphanous, glossy, horn-coloured ; spire short and acute. Half an inch long. Inhabits the ditches and streams of Europe.

Genus 68.—**LUTEA.**—*Brown.*

Generic Character.—Shell globular; spire short, subacute; aperture ovate; outer lip not continuous, slightly inflected at top, and acute at the base; a little reflected on the base of the columella, and subumbilicate.

Lutea lacuna.—**THE DITCH LUTEA.**

Plate LXXXVI. fig. 10.

Very diaphanous, slightly wrinkled, and of a greenish horn-colour. Half an inch long. Inhabits the ditches in Britain.

Genus 69.—**PLANORBIS.**—*Lamarck.*

Generic Character.—Shell discoid; spire depressed; the volutions apparent on both sides; aperture oblong, luniform; axis of shell remote; margin not reflected; destitute of an operculum.

Planorbis carinatus.—**THE KEELED PLANORBIS.**

Plate LXXXVI. fig. 11.

Depressed; upper side concave, with a keel round the middle of the body. Three-fourths of an inch in diameter. Inhabits the ditches and lakes of Europe.

Genus 70.—**PLANARIA.**—*Brown.*

Generic Character.—Shell discoid, depressed on both sides; the volutions conspicuous on either side; spire slightly produced above, and concave beneath; aperture ovate; edges of outer lip acute; destitute of an operculum.

Planaria alba.—**THE WHITE PLANARIA.**

Plate LXXXVI. fig. 17.

White, slightly wrinkled transversely; outer lip with a narrow margin behind. One-fourth of an inch in diameter. Inhabits the coast of Dunbar,—Scotland.

TRIBE X.—**COLIMACEA.**

Spiral, but without any exterior projections, except the additions of growth; outer lip frequently reflected; terrestrial tentaculæ of the animal cylindrical, and devoid of an operculum.

SUB-DIVISION I.—Animals with two tentacula.

Genus 71.—CYCLOSTOMA.—Lamarck.

Generic Character.—Shell variable in shape ; volutions cylindrical ; aperture circular, entire, and reflected in the adult state ; with a horny operculum.

Cyclostoma elegans.—THE ELEGANT CYCLOSTOMA.

Plate LXXXVI. fig. 12.

Ovate, conical, umbilicated ; with fine transverse striæ ; volutions very convex ; ash-coloured with three bands of brown spots. Half an inch long. Inhabits Europe.

Genus 72.—AURICULA.—Lamarck.

Generic Character.—Shell suboval, or ovate-oblong ; aperture longitudinal ; base entire and contracted above, or with the margins disunited ; columella with one or with various plaits ; outer lip sometimes reflected, and in other species simple.

Auricula Judæ.—JUDAS AURICULA.

Plate LXXXVI. fig. 13.

Oblong, conical, cylindrical, thick, with minute decussated striæ and granulations ; whitish-brown ; columella with three plaits. Two and a fourth inches long. Inhabits the East Indies.

SUB-DIVISION II.—Animals with four tentacula.

Genus 73 —SUCCINEA.—Lamarck.

Generic Character.—Shell ovate, or ovate-conical ; aperture very wide, entire, and longitudinal ; outer lip acute, but not reflected, united to the columella, which is protracted ; columella smooth, attenuated and acute ; destitute of an operculum.

Succinea amphibia.—THE AMPHIBIOUS SUCCINEA.

Plate LXXXVI. fig. 14.

Amber coloured ; excessively thin and pellucid ; spire short ; aperture expanding. Three-fourths of an inch long. Inhabits the sides of ditches and lakes in Europe.

Genus 74.—ACHATINA.—Lamarck.

Generic Character.—Shell ovate or oblong; aperture entire, elongated; lip acute, never reflected; columella smooth; the base truncated.

Achatina Virginea.—THE VIRGINIAN ACHATINA.

Plate LXXXVI. fig. 15.

Smooth, grayish-white, with red and black transverse bands; the columella with one plait, rose-coloured; volutions ventricose; inside of the lip bluish. One and a half inch long. Inhabits South America.

Genus 75.—BULIMUS.—Lamarck.

Generic Character.—Shell ovate, oblong, or turritid; aperture entire, longitudinal; margins unequal, and disunited above; columella straight, smooth, entire at the base, and not effuse.

Bulimus montanus.—THE MOUNTAIN BULIMUS.

Plate LXXXVI. fig. 16.

Ovate-oblong, umbilicated, slightly striated longitudinally; brownish horn-coloured; with seven convex volutions; aperture semioval; outer lip white and reflected. Five-eighths of an inch long. Inhabits mountainous situations in Europe.

Genus 76.—CLAUSILIA.—Lamarck.

Generic Character.—Shell sinistral, generally fusiform, slender; summit somewhat obtuse; aperture irregular, rounded, or oval; margins united, free, and externally reflected.

Clausilia papillaris.—THE PIMPLED CLAUSILIA.

Plate LXXXVI. fig. 18.

Peducid, finely striated longitudinally, horn-coloured brown; the margins of the volutions papillose; aperture with two plaits. Three-fourths of an inch long. Inhabits dry situations in Europe.

Genus 77.—PUPA.—Lamarck.

Generic Character.—Shell cylindrical, generally thick; aperture irregular, semi-ovate, rounded, and subangulated beneath; margins of outer lip nearly equal, and reflected outwardly, un-

connected at their upper parts ; the plait of the columella interposed between them.

Pupa muscorum.—THE MOSS PUPA.

Plate LXXXVI. fig. 21.

Very small, cylindrical, obtuse, and smooth, brownish horn-coloured ; volutions convex ; sutures much sunk ; aperture with one tooth ; outer lip white and reflected. One-eighth of an inch long. Inhabits moss, generally in shaded places of Europe.

Genus 78.—HELICINA.—*Lamarch*.

Generic Character.—Shell subglobose, imperforate ; aperture entire, and semi-oval ; columella callous, transverse, and flat ; margins of outer lip acute, and forming an angle at the base of the right margin ; with a horny operculum.

Helicina major.—THE GREAT HELICINA.

Plate LXXXVI. fig. 22.

Citron coloured, inside pink ; pillar and outer lip white ; the former broadly reflected on the columella.

Genus 79.—ANOSTOMA.—*Lamarch*.

Generic Character.—Shell suborbicular ; spire convex and obtuse ; aperture rounded, dentated within, turned upwards and grinning ; margin of the outer lip reflected.

Anostoma globulosa.—THE GLOBULAR ANOSTOMA.

Plate LXXXVI. fig. 25.

Suborbicular, obsoletely carinated, smooth, and white ; aperture with six teeth ; reddish-brown.

Genus 80.—CAROCOLLA.—*Lamarch*.

Generic Character.—Shell orbicular, more or less convex or conoid above, with the circumference acutely angulated ; aperture transverse, contiguous to the axis of the shell ; outer lip subangular, frequently dentated below.

Carocolla lapicida.—THE STONE CAROCOLLA.

Plate LXXXVI. fig. 26.

Depressed above, and convex beneath, broadly umbilicated,

and transversely striated ; reddish horn-coloured ; body carinated. Seven-eighths of an inch in breadth. Inhabits dry situations in Europe.

Genus 81.—HELIX.—Linnæus.

Generic Character.—Shell orbicular, convex or conoid above ; sometimes globular, with the spire somewhat elevated ; aperture entire, transverse, very oblique contiguous to the axis of the shell ; having the margin disunited by the projection of the body.

Helix arbustorum.—THE GROVE HELIX.

Plate LXXXVI. fig. 27.

Subglobular, subumbilicated, finely striated longitudinally ; greenish-yellow, beautifully mottled, and streaked with reddish-brown, and a broad brown band running throughout the middle of the volutions. One inch in diameter. Inhabits the groves and woods of Europe.

ORDER IV.—GASTEROPODA.

Animals with straight bodies, and never spiral, nor enveloped entirely in a shell, having a foot or muscular disk under the abdomen, attached to the body nearly its whole length, and serving for progressive motion.

SECTION I.—PNEUMOBANCHIÆ.

Branchiæ, constructed like a vascular net, on the wall of a particular cavity, opening by a perforation which the animal has the power of contracting and dilating at pleasure. They respire air.

TRIBE I.—LIMACINEA. •

The animals almost wholly naked, with elongated bodies ; and they creep by means of a ventral disk, with a narrow mantle bordering their sides.

Genus 1.—VITRINA.—Lamarck.

Generic Character.—Body creeping, elongated, snail-shaped,

nearly straight; posteriorly separated from the foot, and spirally wound into a shell; the various posterior appendages of the mantle displayed over part of the shell; four tentacula; the anterior very short; shell small, extremely thin, depressed, spire very short; body very large; aperture ample, rounded and oval: the left margin slightly inflected.

Vitrina pellucida.—THE PELLUCID VITRINA.

Plate LXXXVI. fig. 5.

Extremely thin, pellucid, and glossy; depressed, with the spire very short; of a pale yellowish green; aperture large and oval. Four lines long. Inhabits dry places of Europe.

Genus 2.—TESTACELLA.—Lamarck.

Generic Character.—Body creeping, elongated, snail-shaped, having a shell on the posterior extremity; four tentacula, the two longest with the eyes at their tips; vent and respiratory organs behind; shell very small, external somewhat ear-shaped; the apex obsoletely spiral; aperture very large, oval, with outer lip inflected.

Testacella Haliotidea.—THE HALIOTIS-SHAPED TESTACELLA.

Plate LXXXVI. fig. 23.

Shell oblong-ovate, auriform; left margin slightly reflected; exceedingly thin, transparent, and yellowish. Inhabits the middle provinces of France.

Genus 3.—LIMAX.—Linnaeus.

Generic Character.—Body oblong, naked, and creeping; back convex, provided with a coriaceous slightly wrinkled shield, which has a flat longitudinal disk beneath; tentacula four, retractile, the two posterior the largest, with eyes at their tips; branchial cavity placed under the shield; orifice for respiration and vent on the right side; shell small, extremely thin, oblong, ovate, not convolute, but with a cavity at top.

Limax Rufus.—THE RED LIMAX.

Plate LXXXVI. fig. 29.

Shell ovate-oblong, both margins reflected; very thin, dia-

phanous, slightly wrinkled, and of a pale straw-yellow colour. Inhabits gardens in Britain and France.

Genus 4.—PARMACELLA.—*Lamarch.*

Generic Character.—Body creeping, oblong; middle of the back moderately convex, and shield-shaped; the hind part in the form of a tail, laterally compressed, and acute above; shield ovate, fleshy, adhering at its posterior part, and free before, enveloping a shell, and having a notch in the centre of its right margin; having four tentacula, the two posterior the largest; respiratory and anal orifices under the notch of the shield, and the orifice for generation placed between the two tentacula of the right side.

Parmacella calyculata.—THE CUP-SHAPED PARMACELLA.

Plate LXXXVI. fig. 31.

Ovate; left margin broad and reflected, right margin reflected at top and acute beneath; exceedingly thin, transparent, and of a pale yellowish-brown.

Genus 5.—ONCHIDIUM.—*Lamarch.*

Generic Character.—Body oblong, creeping, margined on all sides; head projecting, the lower part with a prominent margin; two retractile, cylindrical tentacula; two auriform appendages, nearly lateral; mouth underneath; destitute of maxillary processes; the respiratory and anal orifices distinct, placed under the extremity of the body.

SECTION II.—HYDROBRANCHIÆ.

The branchiæ formed in filaments or laminæ, and pectinated or tufted. The animals respire in water.

TRIBE II.—LAPLYSIACEA.

The branchiæ placed in a particular cavity, situated near the posterior region of the back, and covered by an opercular shield; the animals possessing tentacula.

Genus 6.—DOLABELLA.—*Lamarch.*

Generic Character.—Body creeping, oblong, narrowed in front, and posteriorly widened; the area round, sloping, and obliquely

truncated; with the margins folded over the back; four somewhat tubular tentacula, disposed in pairs; branchial operculum inclosing a shell; anal orifice situated on the back, near the branchiæ.—Shell oblong, slightly arcuated, thick, callous, and somewhat spiral on both sides.

Dolabella Rumphii.—RUMPHIUS'S DOLABELLA.

Plate LXXXVI. fig. 30.

Base thick, callous, and subspiral; dilated above, thin, and wedge-shaped. Inhabits the Indian ocean, at the Isle of France.

Genus 7.—LAPLYSIA.—*Linnaeus*.

Generic Character.—Body creeping, oblong, convex above; bordered on each side by a broad mantle, which covers the back when the animal is quiescent; head and neck elevated; with four tentacula, of which the two upper ones are ear-shaped; the eyes situated near the mouth before the ear-shaped tentacula; the dorsal shield semicircular, sub-cartilaginous, adhering on one side, and covering the branchial cavity; anal orifice placed behind the branchiæ.

Laplysia radiata.—THE RADIATED LAPLYSIA.

Plate LXXXVII. fig. 25.

Nearly round, left margin somewhat reflected; outer lip acute; yellowish horn-coloured, with brown radiations, and two concentric bands.

TRIBE III.—BULLACEA.

The branchiæ situated in a particular cavity, near the posterior region of the back, and covered by a mantle; destitute of tentacula.

Genus 8.—BULLA.—*Linnaeus*.

Generic Character.—Body oblong-ovate, slightly convex; divided into two transverse portions above, and having the mantle slightly folded posteriorly; with visible tentacula; branchiæ on the fore part of the back, and covered; anal opening placed in the right side.—The posterior part of the body covered by an involute shell, with neither pillar nor spire; aperture extending the whole length of the shell.

Bulla lignaria.—THE WOOD-LIKE BULLA.

Plate LXXXVII. fig. 23. 5

Narrowed towards the top, where it is slightly umbilicated; yellowish-brown, with numerous transverse pale striæ. Two inches long. Inhabits the British seas.

Genus 9.—BULLÆA.—*Lamarck*.

Generic Character.—Body ovate-oblong, somewhat convex above, and divided transversely into two parts; the lateral lobes of the foot thickened and retrousse; head indistinct, and without tentacula; branchiæ placed on the back.—Shell concealed in the mantle; thin, somewhat involute on one side, and destitute of a columella or spire; aperture large and wide.

Bullæa aperta.—THE OPEN BULLÆA.

Plate LXXXVII. fig. 23.

Suborbicular, pellucid, white, faintly striated, and slightly wrinkled; almost entirely open. Half an inch long. Inhabits the British seas.

Genus 10.—RETUSA.—*Brown*.

Generic Character.—Animal unknown.—Shell small, oblong-ovate, spiral, outer lip nearly the whole length of the body, and entire; spire very short, volutions prominent.

Retusa plicata.—THE PLAITED RETUSA.

Plate LXXXVII. fig. 27.

White, opaque, subcylindrical; spire produced; aperture elongated, straitened at top; two transverse plaits, and several oblique ones, at the base of the columella; outer lip thin, slightly inflected. One-third of an inch long. Inhabits the sea at Dunbar.

Genus 11.—AKERA.—*Brown*.

Generic Character.—Animal not described.—Shell elastic, convoluted; apex obtuse, canalculated, the volutions even with the body; aperture wide at the base, contracted at top, and extending the whole length of the body; columella visible to the end.

Akera flexilis.—THE FLEXIBLE AKERA.

Plate LXXXVII. fig. 29.

Oval, membranaceous, excessively thin and flexible; horn-coloured, with a convolute truncated channelled spire; pillar lip a little thickened and white. Three-fourths of an inch long. Inhabits the British seas.

Genus 12.—DIAPHANA.—Brown.

Generic Character.—Animal unknown.—Shell small, spiral, fragile, somewhat orbicular; aperture encompassing the body, wide; pillar lip slightly reflected, behind which is a subumbilicus; spire very short, never exceeding two volutions, and hardly rising above the body, which is concave at top.

Diaphana candida.—THE WHITE DIAPHANA.

Plate LXXXVII. fig. 30.

Pure white, ventricose; aperture whole length of the shell, narrowed at top; spire short; subumbilicated. One-sixth of an inch long. Inhabits the Frith of Forth.

Genus 13.—ACERA.—Lamarck.

Generic Character.—Body ovate, convex, transversely divided above into two parts; the foot with dilations in the form of wings below; head indistinct; branchiæ situated on the back, greatly behind, and covered by a mantle; destitute of a shell.

TRIBE IV.—CALYPTRACEA.

The branchiæ are situated in a dorsal cavity near the neck, and included in the cavity or projecting beyond it; shell invariably exterior.

Genus 14.—ANCYLUS.—Lamarck.

Generic Character.—Body creeping, enveloped in the shell; two compressed subtruncated tentacula, with the eyes situated at their internal base; foot short, elliptical; somewhat narrower than the body; shell thin, obliquely conical; aperture oval, with a pointed apex, which is inclined backwards; margins simple.

Ancylus oblonga.—THE OBLONG ANCYLUS.

Plate LXXXVII. fig. 18.

Aperture elongated, vertex turned to one side ; with fine concentric striae ; pale horn-colour above, inside bluish. One-third of an inch long. Inhabits the fresh waters of Europe.

Genus 15.—CREPIDULA.—*Lamarck*.

Generic Character.—Head of the animal anteriorly forked, having two conical tentacula, with the eyes placed at their exterior base ; mouth simple, destitute of jaws, and situated in the bifurcation of the head ; branchiæ with tufts and projecting from the branchial cavity ; the mantle never bordering the shell ; foot minute ; anal orifice lateral ; shell ovate, or oblong-ovate, convex on the back, and concave beneath ; spire inclining to one side ; aperture with a horizontal partition next the spire, extending to nearly the middle of the shell.

Crepidula aculeata.—THE PRICKLY CREPIDULA.

Plate LXXXVII. fig. 16.

Oval, brown, with acute rough striae ; vertex recurved ; inside with a chamber, and bluish or purple. One inch long. Inhabits the American seas.

Genus 16.—CALYPTRÆA.—*Lamarck*.

Generic Character.—Animal unknown.—Shell conical, base orbicular, and summit vertical, imperforate and acute ; internal cavity with a spiral septum.

Calyptrea Sinensis.—THE CHINESE CALYPTRÆA.

Plate LXXXVII. fig. 19.

Orbicular, subconic ; vertex ending in a small volution ; smooth, margin entire ; cream-yellow ; very glossy within, and provided with a laminar plate. Three-fourths of an inch in diameter. Inhabits the Chinese seas.

Genus 17.—PILEOPSIS.—*Lamarck*.

Generic Character.—Animal with two conical tentacula, and the eyes at their base ; branchiæ formed in a row under the anterior margin of the cavity, near the neck.—Shell obliquely conical, anteriorly recurved, and the apex nearly spiral ; aperture

of a roundish oval; the anterior margin shortest, and the posterior one large and rounded; the muscular impressions elongated, arcuated and transverse, situated under the posterior margin.

Pileopsis Ungarica.—THE HUNGARIAN PILEOPSIS.

Plate LXXXVII. fig. 31.

Conical, vertex slightly spiral; longitudinally striated, and transversely wrinkled; covered with a fawn-coloured pilous epidermis; inside smooth, glossy, white, or rose-colour. Two inches in diameter. Inhabits the seas of Europe.

Genus 18.—FISSURELLA.—*Lamarck*.

Generic Character.—Animal with the head truncated in front; two conical tentacula, with eyes at their exterior base; mouth simple, terminal, and destitute of jaws; two pectinated branchiæ projecting from the cavity; mantle large, protruding beyond the shell.—Shell shield-shaped, conically depressed; concave within; the vertex perforated; destitute of a spire; and of an oblong-ovate shape.

Fissurella Græca.—THE GREEK FISSURELLA.

Plate LXXXVII. fig. 20.

Ovate-oblong, convex; the vertex with an ovate perforation; striæ cancellated, elevated, and the sections tuberculated; opening oblong-ovate, white or bluish; outside yellowish-brown, sometimes clouded. Half an inch long. Inhabits the European seas.

Genus 19.—SIPHO.—*Brown*.

Generic Character.—Animal unknown.—Shell subconic, vertex turned to one side, slightly spiral, with a small fissure near the apex; inside having a rhombic funnel-shaped syphon, corresponding with the external fissure; ovate.

Sipho striatus.—THE STRIATED SIPHO.

Plate LXXXVII. fig. 21.

White, with strong divergent striæ and faintly striated concentrically; margin slightly crenulated; the fissure triangular. Three-eighths of an inch long. Inhabits the sea at Greenock.

Genus 20.—EMARGINULA.—Lamarck.

Generic Character.—Body of the animal creeping; having two conical tentacula, with the eyes placed at their external base; mantle large, partly covering the margin of the shell; foot large and thick.—Shell conical, shield-shaped; vertex inclined to one side; internal cavity simple; the dorsal margin with a fissure.

Emarginula fissura.—THE SLIT EMARGINULA.

Plate LXXXVII. fig. 17.

Oval, with reticulated striæ, and ribs radiating from the vertex, which is obtuse and slightly recurved; margin with a fissure, which extends nearly half way to the vertex; inside glossy white. Three-eighths of an inch long. Inhabits the British seas.

Genus 21.—PARMOPHORUS.—Lamarck.

Generic Character.—Body creeping, very thick, oblong-ovate, broad behind, obtuse at the extremities; border of the mantle cleft before, and suspended vertically around; back shell shield-shaped, and partly covered; head distinct, and slit below; two conical contracted tentacula, at the base of which are placed the eyes, and are somewhat pedunculated; mouth below, funnel-shaped, oblique, truncated and concealed; branchial cavity opening anteriorly behind the head by a transverse fissure.—Shell oblong, somewhat in the form of a parallelopiped; slightly convex above, with a small sinus before; apex pointed, inclined backwards.

Parmophorus Australis.—THE AUSTRALIAN PARMOPHORUS.

Plate LXXXVII. fig. 22.

Shell oblong, depressed; vertex slightly recurved; concentrically striated; the posterior margin rounded, and the anterior truncated. Two inches long. Inhabits the Australian coasts.

TRIBE V.—SEMIPHYLLIDIACEA.

Branchiæ situated under the margin of the mantle, and set in a longitudinal series, on the right side of the body. The animals respire under water.

Genus 22.—UMBRELLA.—Lamarck.

Generic Character.—Body of the animal very thick, somewhat oval, and provided with a dorsal shell; foot large, smooth, and flat underneath, surrounded by a border, anteriorly notched, attenuated behind; head indistinct; four tentacula, the two upper ones thick, short, and truncated, the other two thin, and shaped like pedunculated crests; having foliaceous branchiæ.—Shell external, orbicular and somewhat irregular; slightly convex above, with the vertex towards the centre; internal cavity but slightly hollowed; lips smooth.

Umbrella Indica.—THE INDIAN UMBRELLA.

Plate LXXXVII. fig. 24.

Ovate, slightly convex above; the vertex towards the centre; whitish, summit yellow, longitudinally striated, and concentrically wrinkled; inside with radiating striæ. Four inches in diameter. Inhabits the Indian seas.

Genus 23.—PLEUROBRANCHIUS.—Lamarck.

Generic Character.—Body creeping, fleshy; mantle and foot expanded; branchiæ placed on the right side; cloak enveloping the shell; neck short, contracted in some species, with an emarginate front, exhibiting the commencement of the inferior tentacula, the upper ones tubular and cloven; gills at the edge of the dorsal plait, in front of which are the generative and anal orifices; mouth provided with a short retractile proboscis.

Pleurobranchus plumula.—THE PLUMED PLEUROBRANCHIUS.

Plate LXXXVII. fig. 14.

Ovate-oblong, depressed, pellucid, yellowish-white, concentrically wrinkled, almost entirely open, rounded, and convoluted; the vertex with a single turn. Half an inch long. Inhabits the Devonshire coast.

TRIBE VI.—PHYLLIDIACEA.

The branchiæ are situated beneath the margin of the mantle, in a longitudinal series around the body. Animals respiring in water.

Genus 24.—PATELLA.—Linnaeus.

Generic Character.—Body completely covered by the shell;

head with two acute tentacula, and the eyes situated at their exterior base; branchiæ placed under the mantle and around the body; anal and generation orifices situated on the right anterior side.—Shell univalve, not spiral, concave within, simple, entire, with the vertex anteriorly inclined.

Patella vulgata.—THE COMMON PATELLA, OR LIMPET.

Plate LXXXVII. fig. 15.

Oval, conic, or a little depressed; outside green or brown, sometimes radiated with various colours; having divergent strike and concentric wrinkles; inside glossy, iridescent, with yellow or fawn-coloured, purple, blue, or brown radiations. Two inches long. Inhabits the coasts of Europe.

Genus 25.—CHITON.—*Linnaeus*.

Generic Character.—Body creeping, ovate-oblong, convex, round at both extremities; margined with a coriaceous skin; the back covered by a longitudinal series of testaceous, transverse, imbricated, and moveable plates; head before, sessile, with the mouth placed below; destitute of tentacula or eyes; branchiæ placed round the body, under the margin of the skin; anal orifice at the posterior extremity.

Chiton fascicularis.—THE FASCICULATED CHITON.

Plate LXXXVII. fig. 13.

Eight imbricated valves, nearly smooth, slightly carinated, and rounded at the margins, with a thick tuft of hair between the junction of the valves, having five on the top of the upper valve, and three on the base of the lower one. Three-fourths of an inch long. Inhabits the British coasts.

Genus 26.—CHITONELLUS.—*Lamarck*.

Generic Character.—Body creeping, elongated; middle of the back provided its entire length with a multivalve shell; the alternate pieces for the most part longitudinal; sides naked; branchiæ disposed around the body; foot cleft longitudinally by a deep furrow.

Chitonellus striatus.—THE STRIATED CHITONELLUS.

Plate LXXXVII. fig. 10.

Each valve with striæ radiating from its apex; the margins serrated; the base of the last valve obtuse. Inhabits the seas of New Holland.

Genus 27.—PHYLLIDIA.—Lamarck.

Generic Character.—Body creeping, oblong-ovate, somewhat convex above; with a varicose, coriaceous, or tubercular skin, which forms a produced margin around the body; branchiæ arranged in a series of transverse leaflets under the margin of the skin; four tentacula; organs of generation situated on the right side; anal orifice placed behind, on the back. Destitute of a shell.

TRIBE VII.—TRITONACEA.

With exterior branchiæ, placed over the mantle on the back or sides. Destitute of shells.

Genus 28.—DORIS.—Linnæus.

Generic Character.—Body creeping, oblong, sometimes plane, sometimes convex, and somewhat prism-shaped, bordered by a membrane which extends around from one side of the head to the other; mouth anterior, and placed below; four tentacula, two placed anteriorly on the body, in a concavity, the other two contiguous to the mouth; anal orifice towards the base of the dorsal region, surmounted by fringed branchiæ; orifice for generation situated on the right side.

Genus 29.—TETHYS.—Gmelin.

Generic Character.—Body fleshy, semi-pellucid, oblong, attenuated, and acute behind, with a broad semicircular mantle, which covers the head; mouth anterior, and placed below; two tentacula; branchiæ formed into branching tufts, naked, projecting, and disposed in a double longitudinal series; anal opening and orifice for generation on the right side.

Genus 30.—SCYLLÆA.—Linnæus.

Generic Character.—Body creeping, gelatinous, oblong, laterally compressed; back raised into an elevated crest, and having

four wings, formed in pairs; head slightly projecting; two tentacula, dilated above, and compressed towards their base; branchiæ disposed in tufts over the internal surface of the wings; anal orifice, and the opening for generation, situated on the right side.

Genus 31.—TRITONIA.—Cuvier.

Generic Character.—Body creeping, ovate-oblong; back convex; head short, broad, and sessile, with two retractile tentacula, either simple or divided; branchiæ dorsal, in branched tufts, placed in a double row; anus and orifice for generation on the right side.

Genus 32.—EOLIS.—Lamarck.

Generic Character.—Body oblong, creeping, attenuated, acute behind, and somewhat convex above; destitute of a mantle; head short, with four or six tentacula; branchiæ projecting, disposed along the back in rows, shaped like scaly plates, papillose, or like cirri; anal and orifice of generation situated in the right side.

Genus 33.—GLAUCUS.—Cuvier.

Generic Character.—Body elongated, subcylindrical, and gelatinous, terminating posteriorly in a slender subulate tail; head short; four conical tentacula disposed in pairs; three or four pairs of lateral, opposite, and palmated branchiæ, digitated at their summit, the posterior ones nearly sessile; anal and generative orifices placed laterally.

ORDER V.—PTEROPODA.

Animals destitute of any foot for locomotion, and of arms for seizing their prey; provided with two opposite and similar fins fitting them for swimming; body free and floating.

Genus 1.—PNEUMODERMON.—Cuvier.

Generic Character.—Body free, naked, soft, and oval; head distinct; mouth terminal, with two lips, at the side of the

mouth two fasciculi of retractile tentacula; destitute of eyes; with two opposite, small, ovate wings, inserted on the side of the neck; upper part of the body having two branchial, pinnated lines; anal orifice lateral. No shell.

Genus 2.—CYMBULIA.—*Cuvier.*

Generic Character.—Body oblong, gelatinous, pellucid, inclosing a shell; head sessile; two eyes, and two retractile tentacula; mouth with a retractile proboscis; two opposite, oblong-ovate, branched wings, connate at their posterior base.—Shell gelatino-cartilaginous, transparent, and oblong; apex truncated; the aperture lateral.

Cymbulia Peronii.—PERON'S CYMBULIA.

Plate LXXXVII. fig. 6.

Somewhat gelatinous, or cartilaginous; very transparent crystalline; oblong, pointed at the vertex, truncated at the base; general shape like a Turkish slipper. Two inches long. Inhabits the Mediterranean.

Genus 3.—LIMACINA.—*Lamarck.*

Generic Character.—Body soft, oblong, two branchial fins situated at the base of the neck; posterior part of the body spiral, and enveloped in a shell.—Shell thin, fragile, papyraceous, spiral, with the volutions articulated in a discoid form.

Limacina helicalis.—THE HELIX-LIKE LIMACINA.

Plate LXXXVII. fig. 11.

Thin, fragile, spiral; the volutions united in a discoid form. Half an inch in diameter. Inhabits the North seas.

Genus 4.—CLEODORA.—*Peron.*

Generic Character.—Body oblong, gelatinous, contractile; a head in front with two wings, and the posterior part enveloped in a shell; head distinct, projecting, and round; two eyes; mouth in the form of a small beak; destitute of tentacula; two opposite membranaceous, pellucid, and cordated wings, placed at the base of the neck.—Shell gelatinoso-cartilaginous, transparent, and in the form of a reversed pyramid.

Cleodora pyramidata.—THE PYRAMIDAL CLEODORA.

Plate LXXXVII. fig. 9.

Pyramidal, triangular; of a gelatinous or cartilaginous substance, very thin and transparent; aperture obliquely truncated. Inhabits the American seas.

Genus 5.—CLIO.—*Lamarck*.

Generic Character.—Body naked, gelatinous, oblong, turbinated, swimming; head projecting, surmounted by numerous retractile tentacula, disposed in two fasciculi; two eyes placed above; mouth terminal; two opposite branchial fins, situated at the base of the neck; anal and generative orifices, placed on the right side, near the neck, and under the fin. Destitute of a shell.

Genus 6.—HYALÆA.—*Lamarck*.

Generic Character.—Body enclosed in a shell, winged before; two opposite wings, somewhat retractile, inserted at the sides of the mouth; head indistinct; mouth terminal, placed at the junction of the fins; without eyes; branchiæ lateral; shell horny, transparent, oval-globular, with three teeth behind, open at the summit and the two posterior sides.

Hyalæa tridentata.—THE THREE-TOOTHED HYALÆA.

Plate LXXXVII. fig. 12.

Transparent, horn-coloured, globular; posteriorly tridentate; summit and two posterior sides open; very finely striated transversely. Three-fourths of an inch long. Inhabits the Mediterranean.

CLASS II.—CONCHIFERA.

Animals soft with articulations, destitute of head or organs of vision, and always fixed within a bivalve shell; having external branchiæ; a simple circulation, and a unilocular heart.

All the shells of this class live in the sea or in fresh water. None of the animals have an internal shell. The body is inva-

riably soft, and the mouth is situated near the left side of the hinge.

Lamarck divides this class into the two following orders:—
I. MONOMYAIRA, with one muscle of attachment; shell exhibiting interiorly but one subcentral muscular impression.—II. DIMYAIRA, having at least two muscles of attachment; the shell exhibiting interiorly, two separate, lateral, muscular impressions.

ORDER I.—MONOMYAIRA.

The animal provided with one muscle of attachment, leaving a nearly central muscular impression.

SECTION I.—Without a ligament, or unknown; or in its stead a tendinous chord, which connects the valves.

TRIBE I.—BRACHIOPODA.

Provided with two opposite, elongated, ciliated arms, situated near the mouth, which are rolled up spirally when the animal is at rest; mantle having two separate lobes in front, which envelope the body.—Shell bivalve, adhering to extraneous marine bodies, either by the shell itself being in contact with them, or attached by a tendinous chord. The shells are not quite equivalve, and open by a hinge.

Genus 1.—LINGULA.—Lamarck.

Generic Character.—Subequivalve, flat, ovate-oblong, apex truncated, slightly pointed at the base, elevated on a fleshy tendinous peduncle, attached to marine bodies; hinge without teeth.

Lingula anatina.—THE DUCK LINGULA.

Plate LXXXVII fig. 7.

Shaped like a duck's bill, with a green, shining epidermis, and having a cylindrical pedicle. Four inches long. Inhabits the Indian ocean.

Genus 2.—TEREBRATULA.—Lamarck.

Generic Character.—Inequivalve, regular, subtrigonal; at-

tached by a short pedicle to extraneous marine bodies; the larger valve with a projecting umbo, frequently bent, and perforated at its summit by a round hole; hinge with two teeth; two slender osseous processes arising from the disk of the smaller valve.

This genus contains two sections:—* Shell without furrows or striæ. ** Longitudinally furrowed.

Terebratula cranium.—THE SKULL TEREBRATULA.

Plate LXXXVII. fig. 1.

Slightly ovate, ventricose; summit of the convex valve produced and blunt; with divergent striæ, and the margin crenulated. Half an inch long. Inhabits the sea at the Zetland Islands.

Genus 3.—ORBICULA.—*Lamarch.*

Generic Character.—Suborbicular, inequivalve; without any visible hinge; under valve very thin, depressed, and adhering to marine bodies; upper valve subconic, vertex acute, and more or less elevated.

Orbicula Norwegica.—THE NORWEGIAN ORBICULA.

Plate LXXXVII. fig. 32.

Upper valve in the form of a depressed cone, with a produced and pointed summit. Inhabits the Norwegian seas.

TRIBE II.—RUDISTA.

Animal unknown, as are also the ligament and hinge; shell with very unequal valves, and having no distinct umbones.

Genus 4.—CRANIA.—*Lamarch.*

Generic Character.—Inequivalve, suborbicular; lower valve flattened, fixed below, and perforated in its lower surface by three unequal oblique holes; upper valve very convex; provided interiorly with two projecting callosities.

Crania personata.—THE MASKED CRANIA.

Plate LXXXVII. fig. 5.

Orbicular; the upper valve gibbous and conical; lower valve flat, with three perforations. Inhabits the Indian ocean.

Genus 5.—DISCINA.—Lamarck.

Generic Character.—Inequivalve, of a rounded oval shape, and depressed; valves equal in size, each provided with an orbicular and central disk; that of the upper valve not perforated, but having a mammillated projection in the centre; the lower valve divided by an oblong fissure.

Discina ostreoides.—THE OYSTER-LIKE DISCINA.

Plate LXXXVII. fig. 8. *a*, the upper valve; *b*, the under valve.

Upper valve longitudinally ribbed, crossed by concentric striæ. Five lines long. Inhabits the Zetland seas.

Genus 6.—BIROSTRITES.—Lamarck.

Generic Character.—Inequivalve, with two horns; the disks of the valves elevated, conical, and unequal, oblique, diverging, and sub-erect, somewhat horn-shaped; the one valve enveloping the other at the base. Fossil.

Genus 7.—CALCEOLA.—Lamarck.

Generic Character.—Inequivalve, triangular, turbinated, flattened beneath; the larger valve hollowed like a hood, and truncated obliquely at the aperture; the smaller valve somewhat orbicular, and in the form of a lid, having a furrow in the centre. Fossil.

Genus 8.—RADIOLITES.—Lamarck.

Generic Character.—Inequivalve, and interiorly striated, radiating from the umbo; lower valve turbinated, and the largest; the upper one convex or conical, and lid-shaped. Fossil.

Genus 9.—SPHÆRULITES.—Lamarck.

Generic Character.—Inequivalve, suborbicular-globose, somewhat depressed above, roughened with large subangular horizontal scales; the upper valve the least, flattened, lid-shaped, with two unequal tubercles within; under valve subventricose, with the scales radiating beyond the margin, and forming a ridge; inside partly striated; hinge unknown.

SECTION II.—Ligament not marginal, enclosed in a short

hollow under the beak, always perceptible, and not forming a tendinous chord beneath the shell.

TRIBE I.—OSTRACEA.

Ligament placed either interiorly or nearly so; shell irregular in form, foliaceous, and sometimes papyraceous.

* Papyraceous, thin shells, with an interior ligament.

Genus 10.—ANOMIA.—*Linnæus*.

Generic Character.—Shell inequivalve, irregular, operculated, adhering by the operculum; under valve flattened, with a large hole near the umbo, through which protrudes a testaceous, straight, elliptical operculum, or plug, by which the shell adheres to extraneous bodies; upper valve larger, concave, and entire.

Anomia undulata.—THE WAVED ANOMIA.

Plate LXXXVII. fig. 2.

Suborbicular, pellucid, with strong, irregular, undulated longitudinal striæ, and some transverse concentric ones; outside yellowish dirty green; inside fine green; the ligament perforation large, ovate; muscular impression star-shaped. Two inches broad. Inhabits the British coasts.

Genus 11.—PLACUNA.—*Lamarck*.

Generic Character.—Shell free, subequivalve, irregular, very flat; hinge interior, with two short longitudinal convergent ribs, and divaricated beneath, which fit into two grooves in the opposite valve, held together by the ligament.

Placuna placenta.—THE PLACENTA PLACUNA.

Plate LXXXVII. fig. 3.

Suborbicular, flat, white, and pellucid, with fine longitudinal striæ, slightly decussated. Four inches long. Inhabits the coasts of China.

** Shell foliaceous, frequently ponderous, with a semi-interior ligament.

Genus 12.—VULSELLA.—Lamarch.

Generic Character.—Longitudinal, subequivalve, irregular, and free; umbones equal; hinge, with a projecting callosity depressed above, and a conical oblique hollow for the ligament.

Vulsella lingulata.—THE LATCHET VULSELLA.

Plate LXXXVII. fig. 4.

Elongated, depressed, transversely striated; pale yellowish brown, with longitudinal darker stripes. Four inches long. Inhabits the Indian ocean.

Genus 13.—OSTREA.—Linnaeus.

Generic Character.—Shell adhering to extraneous bodies; inequivalve and irregular, with the beaks separated, and the upper valve advanced as the animal enlarges; hinge without teeth; the lower valve largest; and concave ligament semi-internal; the hollow of attachment increasing with age.

This genus has two sections, * with a simple waved margin, and not plicated, ** margins plicated.

Ostrea edulis.—THE EDIBLE OSTREA, OR OYSTER.

Plate LXXXVIII. fig. 3.

Sub-orbicular, rugged, with undulated, imbricated scales, and transversely striated; one valve flat, and the other convex; outside brownish-green; inside pearly-white; exceedingly variable in size. Inhabits the coasts of Europe.

Genus 14.—GRYPHÆA.—Lamarch.

Generic Character.—Inequivalve, free; lower valve largest and concave; beaks large, projecting, and spirally twisted; upper valve small, flat, and acting as a lid; hinge without teeth; the cardinal hollows oblong, arcuated; having one muscular impression. Animal unknown.

Gryphæa angulata.—THE ANGULATED GRYPHÆA.

Plate LXXXVIII. fig. 1.

Oblong-ovate, with three longitudinal, carinated ribs below; beak large, somewhat oblique. Four inches long. Habitation unknown. A specimen of this rare shell is in the Museum of the Jardin du Roi, at Paris.

TRIBE II.—PECTINIDES.

Shell for the most part regular, and not foliaceous; the ligament either interior, or partly so.

Genus 15.—PODOPSIS.—Lamarck.

Generic Character.—Inequivalve, nearly regular, adhering by its lower beak; without ears; the lower valve the largest, convex, and produced at the base; hinge without teeth; ligament internal. Fossil.

Genus 16.—SPONDYLUS.—Linnæus.

Generic Character.—Inequivalve, adherent, eared, spined, and rough, with unequal beaks; lower valve with an external longitudinal groove, which increases with the age of the animal; hinge with two very strong hooked teeth in each valve, and a central cavity for the ligament, communicating at its base with the external groove; ligament internal.

Spondylus longispina.—THE LONG-SPINED SPONDYLUS.

Plate LXXXVIII. fig. 2.

Longitudinally sulcated and ribbed, thickly spined; of a reddish colour; alternate spines, arcuated and tongue shaped; umbones orange. Four inches long. Inhabits the Indian ocean.

Genus 17.—PLICATULA.—Lamarck.

Generic Character.—Inequivalve, without ears, attenuated at the base, rounded and plaited at the upper margin; beaks unequal and entire; hinge with two strong teeth in each valve, with a central cavity for the ligament, which is internal.

Plicatula ramosa.—THE BRANCHED PLICATULA.

Plate LXXXVIII. fig. 4.

Oblong, trigonal, very thick; with strong longitudinal plaits; brown, or yellowish-brown, with rust-coloured, arrow-shaped markings; inside white. One inch and a half long. Inhabits the American seas.

Genus 18.—PECTEN.—Lamarck.

Generic Character.—Free, regular, inequivalve, eared; the

lower margin transverse, straight; beaks contiguous; hinge without teeth; ligament internal, placed in a triangular cavity.

It has two sections—* ears equal or nearly so—** ears unequal.

Pecten varius.—THE SPECKLED PECTEN.

Plate LXXXVIII. fig. 5.

Ears very unequal; having about twelve ribs, covered with transverse prickly sub-erect scales, variously clouded and speckled with a variety of colours. Two inches and a quarter long. Inhabits the European seas.

Genus 19.—PLAGIOSTOMA.—*Lamarch*.

Generic Character.—Subequivalve, free, somewhat eared; base of the hinge transverse and straight; beaks remote; hinge without teeth; depression for the reception of the ligament conical and partly internal. Species all fossil.

Plagiostoma spinosum.—THE THORNY PLAGIOSTOMA.

Plate LXXXVIII. fig. 6.

Sub-arcuated, the umbo of one shell higher than that of the other, with longitudinal ribs, and remote concentric rings. Fossil. Britain.

Genus 20.—LIMA.—*Bruguère*.

Generic Character.—Equivalve, with small ears; valves gaping at the sides; beaks separate; cavity for the ligament partly external; hinge without teeth.

Lima vitrina.—THE GLASSY LIMA.

Plate LXXXVIII. fig. 7.

Oblong-ovate; extremely pellucid, and pure snowy-white, with longitudinal distinct striae; lower margin denticulated. One half inch long. Inhabits the British seas.

Genus 21.—PEDUM.—*Lamarch*.

Generic Character.—Inequivalve, sub-eared; the lower valve tumid; beaks unequal, separate; hinge without teeth; ligament partly external, inserted in an elongated groove, in the internal

surface of the beaks ; lower valve, with a notch near the posterior margin.

Pedum spondyloideum.—THE SPONDYLUS-SHAPED PEDUM.

Plate LXXXVIII. fig. 9.

Ovate, wedge-shaped, flat ; the superior valve with longitudinal striæ, white, granulated and rough, slightly tinged with purple near the beak. Two inches and a half long. Inhabits the Indian ocean.

SECTION III.—Ligament marginal and elongated.

TRIBE I.—MALLEACEA.

With foliaceous shells, more or less inequivalve ; having the ligament marginal, partly linear, and either simple or interrupted by crenulations.

Genus 22.—MELEAGRINA.—*Lamarck*.

Generic Character.—Somewhat equivalve, rounded and scaly on the outside : a sinus at the posterior side of the shell for the passage of the byssus, at which place the left valve is notched and narrow ; hinge linear, and destitute of teeth ; ligament marginal, elongated, and subexternal and dilated in the centre.

Meleagrina margaritifera.—THE PEARL-BEARING MELEAGRINA.

Plate LXXXVIII. fig. 10.

Somewhat square, compressed ; undulated, and transversely striated, with a series of lamellated longitudinal scales ; greenish on the outside and pearlaceous within. Ten or twelve inches long. Inhabits the Indian ocean.

Genus 23.—AVICULA.—*Lamarck*.

Generic Character.—Shell inequivalve, fragile, with the top straight, transverse, and produced at both extremities, the anterior of which is caudiform ; valves oblique ; the left one emarginate ; hinge linear, with one tooth in each valve, under the beaks ; ligament linear and marginal, placed in a long narrow groove.

Avicula Anglica.—THE ENGLISH AVICULA.

Plate LXXXVIII. fig. 11.

Wing moderate, obliquely curved; yellowish fawn-coloured, with dark reddish-brown blotches; inside pearly and iridescent. One inch and a fourth long. Inhabits the Devonshire coast.

Genus 24.—MALLEUS.—*Lamarck.*

Generic Character.—Subequivalve, rugged, distorted, frequently elongated; sublobate at the top; beaks small, diverging; hinge without teeth, with an elongated conical furrow under the beaks; ligament subexternal, short, placed in the sloping area, at the top of the valves.

Malleus albus.—THE WHITE MALLEUS.

Plate LXXXVIII. fig. 12.

Trilobate; base of the lateral lobe prolonged, without a sinus, the base and the pit for the ligament not distinct; white with transverse undulations. Four inches long. Inhabits the Australian seas.

Genus 25.—PERNA.—*Lamarck.*

Generic Character.—Subequivalve, flattened, slightly distorted, of a lamellar texture; hinge linear, marginal, and many toothed, which are furrow-like, parallel, and transverse, not inserted in the opposite furrows, between which the ligament is inserted; sinus for the byssus somewhat gaping, and placed under the extremity of the hinge,

Perna ephippium.—THE SADDLE PERNA.

Plate LXXXVIII. fig. 13.

Compressed, suborbicular; left valve produced, the margins acute; purplish-brown on the outside, and pearly within. Four inches long. Inhabits the Indian seas.

Genus 26.—CRENATULA.—*Lamarck.*

Generic Character.—Subequivalve, flattened, somewhat distorted and lamellar; with an opening for the byssus; hinge lateral, linear, margined, and crenated; the crenulations in a

regular series, and somewhat hollowed for the reception of the ligament.

Crenatula mytiloides.—THE MUSCLE-SHAPED CRENATULA.

Plate LXXXVIII. fig. 14.

Oblong-ovate, oblique; the base acute; violet coloured, with obscure radiations. Inhabits the Red sea.

TRIBE II.—MYTILACEA.

Hinge with a subinterior marginal ligament, which is linear, very entire, and occupies a considerable portion of the anterior margin; shell rarely foliaceous.

Genus 27.—PINNA.—*Linnaeus*.

Generic Character.—Longitudinal, wedge-shaped, equivalve, gaping at the base, and pointed at the summit, with the beaks straight and acute; hinge lateral and without teeth; ligament marginal, linear, very long, and half interior.

Pinna ingens.—THE HUGE PINNA.

Plate LXXXVIII. fig. 15.

Nearly triangular, horn-coloured, smooth, with distant foliations; striated on one side, with rough scaly wrinkles on the broader end. Twelve inches long. Inhabits the coast of Britain.

Genus 28.—MYTILUS.—*Linnaeus*.

Generic Character.—Longitudinal, equivalve; apex acute, affixed by a byssus; beaks acute, nearly straight and terminal; hinge lateral, generally without teeth; ligament marginal, and partly internal; muscular impressions elongated, clavate, and sublateral.

Section * Longitudinally furrowed. ** Without furrows.

Mytilus edulis.—THE EDIBLE MYTILUS, OR MUSCLE.

Plate LXXXVIII. fig. 16.

Oblong-oval, nearly smooth, pointed and slightly carinated at the beak, truncated on one side, and dilated on the other; covered with an olivaceous epidermis; beneath which it is radiated

with blue or purple; internal margin blue, the concave part white. Two to three inches long. Inhabits the British seas.

Genus 29.—MODIOLA.—Lamarck.

Generic Character.—Subtransverse, equivalve, regular; the posterior side very short; beaks nearly lateral; hinge without teeth, lateral and linear; ligament placed in a marginal furrow, and nearly interior, with one muscular impression in each valve which is sublateral and elongated.

Modiola discors.—THE DISCORDANT MODIOLA.

Plate LXXXVIII. fig. 17.

Oblong-oval, very convex, produced and narrower at the anterior end; longitudinally striated on both sides, and transversely in the middle; outside green; inside white or pale pink, and somewhat pearly; margin crenulated at the base; the beak oblique. One half inch long. Inhabits the British seas.

TRIBE III.—TRIDACNITES.

Transverse, equivalve, the muscular impressions situated under the centre of the lower margins, and extended on each side.

Genus 30.—HIPPOPUS.—Lamarck.

Generic Character.—Equivalve, regular, inequilateral and transverse; lunule closed; hinge with two compressed unequal teeth; ligament marginal, and external.

Hippopus maculatus.—THE SPOTTED HIPPOPUS.

Plate LXXXVIII. fig. 18.

Transversely ovate, ventricose, with scaly ribs; and reddish purple spots; lunule cordated, heart shaped, and oblique; the margins very deeply crenulated. Eight inches broad. Inhabits the Indian seas.

Genus 31.—TRIDACNA.—Lamarck.

Generic Character.—Shell regular, equivalve, inequilateral and transverse; a gaping space near the beaks; hinge with two compressed, unequal teeth; ligament marginal and external.

Tridacna gigas.—THE GIANT TRIDACNA.

Plate LXXXVIII. fig. 21.

Large, white, transversely ovate; with broad ribs, provided with vaulted scales; the posterior slope heart-shaped and gaping. Two feet six inches long, and four feet six inches broad, the largest of all known shells; sometimes weighing above five hundred pounds weight. Inhabits the Indian ocean.

ORDER II.—DIMYAIRA.

Shell having two separate lateral muscular impressions.

SECTION I.—Shell irregular, and always inequivalve.

TRIBE I.—CAMACEA.

Shell inequivalve, irregular, and adherent; hinge with one or more teeth; and with two distinct, lateral, muscular impressions.

Genus 1.—ETHERIA.—*Lamarck*

Generic Character.—Shell irregular, inequivalve, adhering; beaks short, and appearing as if sunk in the top of the valves; hinge destitute of teeth; waved, somewhat sinuated, and unequal; with two distinct, remote oblong muscular impressions; ligament exterior, tortuous, penetrating partly into the shell.

Etheria elliptica.—THE OVAL ETHERIA.

Plate LXXXVIII. fig. 19.

Oval, flattened, dilated towards the umbones; the apices remote. Inhabits the Indian ocean.

Genus 2.—CHAMA.—*Lamarck*.

Generic Character.—Irregular, inequivalve, adherent; beaks incurved, unequal; hinge with one thick, oblique, subcrenated tooth, fitting into a socket in the opposite valve; two distant lateral, muscular impressions; ligament external, and depressed.

Section * Beaks twisted from left to right. ** Beaks turning from right to left.

Chama Lazarus.—THE LAZARUS'S CHAMA.

Plate LXXXVIII. fig. 20.

With imbricated, dilated, waved foliations, and obsoletely striated; of a white, orange, red, or yellow colour; white within. Two inches in diameter. Inhabits the American seas.

Genus 3.—DICERAS.—*Lamarck*.

Generic Character.—Inequivalve, adherent; beaks conical, very large, diverging in irregular, spiral contortions; hinge with a large, thick, concave, subauricular tooth in the larger prominent valve; two muscular impressions.

Diceras arietina.—THE RAM-HORNED DICERAS.

Plate LXXXIX. fig. 7.

Somewhat heart-shaped, with divergent beaks. Fossil.

SECTION II.—LAMELLIPEDES.—The foot depressed, lamelliform, and not posterior.

TRIBE I.—NAYADES.

Shells inhabiting fresh waters; the hinge sometimes having an irregular, simple, or cleft tooth, and a longitudinal, prolonged one, and sometimes none; some have irregular, granulated tubercles, the whole length of the upper part; a compound muscular impression; and the umbo oftentimes decorticated.

Genus 4.—IRIDINA.—*Lamarck*.

Generic Character.—Equivale, inequilateral, transverse; beaks small, turned to one side and nearly straight; two separate lateral, muscular impressions; hinge long, linear, and attenuated near the centre, tuberculous and nearly crenated; tubercles unequal; ligament external and marginal.

Iridina Nilotica.—THE NILE IRIDINA.

Plate LXXXVIII. fig. 22.

Shell transversely oblong; dark olivaceous green on the outside, somewhat wrinkled, concentrically; inside, fine pearly, with iridescent reflections. Five inches long. Inhabits the Nile.

Genus 5.—ANODONTA.—*Lamarck.*

Generic Character.—Equivalve, inequilateral and transverse ; hinge linear, without teeth ; a glabrous plate, lamina smooth, truncated or forming a sinus at the anterior end, terminating the apex of the shell ; two lateral, remote, twin, muscular, impressions ; ligament linear, external, sunk in a cleft at the anterior extremity.

Anodonta cygnea.—THE SWAN ANODONTA.

Plate LXXXIX. fig. 1.

Ovate, thin, convex, somewhat compressed on the anterior side ; with concentric wrinkles ; covered with a green epidermis, frequently brown towards the umbo ; inside pearly white ; beak small and ventricose. Three inches long, and seven broad. Inhabits fresh water lakes in Europe.

Genus 6.—HYRIA.—*Lamarck.*

Generic Character.—Equivalve, oblique, trigonal, eared, with the apex truncated and parallel ; hinge with spreading teeth, the posterior one cleft into numerous divergent portions ; the lateral or anterior tooth strong, elongated and lamellar ; ligament linear, and exterior.

Hyria avicularis.—THE LITTLE-BIRD HYRIA.

Plate LXXXIX. fig. 2.

Umbones smooth and produced ; ears large, with pointed terminations ; a greenish-brown epidermis, and finely striated ; inside pearly, and of a rich reddish golden-yellow. Three inches broad. Inhabits the rivers of America.

Genus 7.—UNIO.—*Lamarck.*

Generic Character.—Shell transverse, equivalve, inequilateral, free ; umbones decorticated, and somewhat worn ; posterior muscular impression compound ; hinge with two teeth in each valve ; the cardinal tooth short, irregular, cleft, and striated ; the other oblong, laterally compressed, and produced when aged ; ligament external.

SECTION * With a short, thick, primary tooth. ** Primary tooth short, compressed, and frequently crested.

Unio pictorum.—THE PAINTER'S UNIO.

Plate LXXXIX. fig. 3.

Oblong-ovate, strong, anterior side rhomboid and attenuated; the opposite side obtusely acute; the umbones, somewhat warted; with a dusky-green epidermis, and concentrically wrinkled. Nearly three inches broad. Inhabits the rivers of Europe.

TRIBE II.—TRIGONACEA.

With a primary lamelliform, and transversely striated tooth. Inhabits the Ocean.

Genus 8.—CASTALIA.—*Lamarck*.

Generic Character.—Equivalve, inequilateral, trigonal; the umbones decorticated, and inflected before; hinge with two lamellary teeth, transversely striated, one posterior, remote, abbreviated and subtrilamellar tooth; another elongated and lateral; ligament external.

Castalia ambigua.—THE AMBIGUOUS CASTALIA.

Plate LXXXIX. fig. 4.

Ovate, oblique, the umbones truncated; longitudinally ribbed, with distant transverse striæ; epidermis pale chestnut brown; inside pearly. Habitat unknown.

Genus 9.—TRIGONIA.—*Lamarck*.

Generic Character.—Equivalve, inequilateral, trigonal, and sometimes orbicular; teeth of the hinge oblong, laterally compressed, diverging, with transverse furrows; two in the right valve, grooved on both sides; and four in the left valve grooved on one side; ligament marginal and external.

Trigonia pectinata.—THE TOOTHED TRIGONIA.

Plate LXXXIX. fig. 5.

Suborbicular, with radiated or divergent, prominent, and somewhat scaly ribs; inside pearly; margin crenulated. One inch and three-fourths broad. Inhabits the Australian seas.

TRIBE III.—ARCAEA.

Primary teeth small, numerous, and disposed in a line in

each valve, which is either straight or interrupted, the teeth of one valve fitting into the intermediate spaces of the other valve.

Genus 10.—NUCULA.—Lamarck.

Generic Character.—Transverse, oval-trigonal, or oblong, equivalve, and equilateral; no intermediate area; teeth of the hinge linear, numerous, and pectinated, interrupted in the middle by an oblique produced hollow; beaks contiguous, reflected; ligament marginal and partly internal.

SECTION * Shells sublongitudinal. ** Shells transverse.

Nucula margaritacea.—THE PEARLY NUCULA.

Plate LXXXIX. fig. 6.

Obliquely ovate, trigonal; striæ minute and almost obsolete; covered with a greenish epidermis; inside silvery pearly; margin crenulated; and having regularly pectinated teeth. One half inch long. Inhabits the British seas.

Genus 11.—PECTUNCULUS.—Lamarck.

Generic Character.—Orbicular, doubly convex, equivalve, subequilateral, and close; hinge arcuated, teeth numerous, oblique, serrated, alternately inserted into the opposite valves, middle ones obsolete; ligament external.

SECTION * No distinct longitudinal furrows. ** With raised longitudinal radiating ribs.

Pectunculus glycimeris.—THE DELICIOUS PECTUNCULUS.

Plate LXXXIX. fig. 8.

Suborbicular, umbones produced; finely striated transversely and longitudinally; covered with a villous skin, under which it is marked with reddish-chestnut spots or bands; inside white, and the margin crenulated. From two to three inches long. Inhabits the British and Mediterranean seas.

Genus 12.—ARCA.—Linnæus.

Generic Character.—Transverse, subequivalve, inequilateral; beaks remote, separated by the area of the ligament; hinge linear, straight, without ribs at the extremities; teeth of the

hinge numerous, serrated, close set, alternately inserted into opposite valves; ligament external.

SECTION * Lower margin not crenated. ** Lower margin internally crenated.

First Note.—NOAH'S ARK.

Plate LXXXIX. fig. 9.

Oblong, striated transversely, and longitudinally ribbed; umbones remote, and incurvated; margin entire and gaping; cream-white, with divergent and zigzag chestnut stripes; inside white. Two inches broad. Inhabits the American and British seas

Genus 13.—CUCULLÆA.—Lamarck.

Generic Character.—Equivalve, inequilateral, trapeziform, ventricose; beaks distant, separated by the area of the ligament; muscular impressions elevated before; margin angulated, or with an eared produced border; teeth of the hinge straight, very small, and set transversely, with from two to five small parallel ribs; ligament external.

Cucullæa curculifera.—THE EARED CUCULLÆA.

Plate LXXXIX. fig. 10.

Obliquely heart-shaped, ventricose, with decussated striae; reddish-brown; hinge with two parallel ribs at each end; white within, and slightly tinged with violet. Two and a half inches broad. Inhabits the Indian ocean.

TRIBE IV.—CARDIACEA.

Having irregular primary teeth, both in form and situation; and accompanied by one or two lateral teeth for the most part.

Genus 14.—ISOCARDIA.—Lamarck.

Generic Character.—Equivalve, heart-shaped, ventricose; beaks very distant, divergent, and spirally turned to one side; hinge with two primary flattened teeth, situated under the beak, and with an elongated lateral one under the ligament. Ligament external.

Isocardia Cor.—THE HEART ISOCARDIA.

Plate LXXXIX. fig. 11.

Globular, and heart-shaped, slightly wrinkled longitudinally; reddish-chestnut, the umbones paler and prominent; inside white. Four inches long. Inhabits the Mediterranean and British seas.

Genus 15.—HIATELLA.—*Daudin.*

Generic Character.—Equivalue, considerably inequilateral and transverse; gaping at the lower margin; teeth of the hinge small, in the right valve; and two oblique somewhat large ones in the left valve; ligament external.

Hiatella arctica.—THE ARCTIC HIATELLA.

Plate LXXXIX. fig. 12.

Transversely oblong; the apices truncated, with two divergent spiny ridges; yellowish-white, with decussated striæ; inside pearlaceous. Half an inch long, and one inch broad. Inhabits the British seas.

Genus 16.—CYPRICARDIA.—*Lamarch.*

Generic Character.—Free, equivalve, inequilateral, oblique, or transversely oblong; teeth of the hinge three, situated under the beaks, and one lateral tooth below the valve.

Cypricardia Guineica.—THE GUINEA CYPRICARDIA.

Plate LXXXIX. fig. 13.

Transversely oblong, oblique, angulated, white, and covered with decussated striæ; compressed before and the apex rounded; yellowish-white. Two inches long. Inhabits the coast of Guinea.

Genus 17.—CARDITA.—*Lamarch.*

Generic Character.—Shell free, regular, equivalve, inequilateral; hinge with two unequal teeth; primary tooth short, straight, placed under the umbo; the other oblique, marginal, and elongated.

Cardita sulcata.—THE FURROWED CARDITA.

Plate LXXXIX. fig. 15.

Subcordate, white, tessellated with brown; having longitudinal, convex transversely striated ribs; posterior depression heart-shaped. One inch long. Inhabits the Mediterranean.

Genus 18.—CARDIUM.—*Linnaeus*.

Generic Character.—Equivalve, subcordate; beaks prominent; the interior margins of the valves denticulated or plicated; hinge with four teeth in both valves; with two approximate primary oblique teeth; mutually inserted and crossing each other; two lateral remote teeth.

Cardium edule.—THE EDIBLE CARDIUM, OR COCKLE.

Plate LXXXIX. fig. 14.

With about twenty-six depressed ribs, and transverse obsolete scales; outside yellowish white, and inside white; beaks protuberant. One to one and a half inches long. Inhabits the European seas.

TRIBE V.—CONCHACEA.

With at least three primary teeth in one valve, and the other generally the same, although sometimes with less.

SUB-DIVISION I.—Inhabiting the sea. Usually destitute of lateral teeth.

Genus 19.—VENERICARDIA.—*Lamarck*.

Generic Character.—Equivalve, inequilateral, suborbicular; generally with longitudinal radiated ribs; hinge with two teeth, the second one oblique.

Venericardia imbricata.—THE IMBRICATED VENERICARDIA

Plate LXXXIX. fig. 17.

Suborbicular, having convex longitudinal ribs, covered with imbricated, rough scales. One and a half inch long. Fossil at Grignon.

Genus 20.—ORTYGIA.—*Leach*.

Generic Character.—Shell equivalve, transverse, three primary

teeth in each valve, two of which are approximate and the other remote; with the ligament subexternal; umbones turned much to one side; beneath which is an elongated cordiform depression; cartilage slope much depressed, with an elongated groove in the right valve for the reception of the margin of the left valve.

Ortygia gallina.—THE HEN ORTYGIA.

Plate LXXXIX. fig. 19.

Somewhat heart-shaped with obtuse recurved concentric striae, and three or four radiated bands proceeding from the umbo to the margin, frequently with zigzag markings throughout; inside white, the margin finely crenated. One inch long. Inhabits the British seas.

Genus 21.—VENUS.—*Linnaeus*.

Generic Character.—Equivalve, inequilateral, transverse, or suborbicular; hinge with three teeth in both valves, all approximate, the lateral ones divergent at their summits; ligament external; having cordiform depressions beneath the beaks.

Venus Casina.—THE MONTICASSINA VENUS.

Plate LXXXIX. fig. 18.

Suborbicular, with transversely acute recurved ridges, crenulated on the hind margin; slightly channelled behind the depression. Two inches long. Inhabits the British seas.

Genus 22.—CYTHEREA.—*Lamarck*.

Generic Character.—Equivalve, inequilateral, suborbicular, triangular, and transverse; right valve with four primary teeth, of which three are divergent and approximate at their base, and one remote; three primary divergent teeth in the opposite valve, and a hollow; margin parallel; without lateral teeth.

Cytherea Chione.—THE CHIONE CYTHEREA.

Plate LXXXIX. fig. 21.

Somewhat heart-shaped, strong; covered with a chestnut glossy epidermis, faintly wrinkled transversely, longitudinally rayed; with a cordiform depression under the beak. Two and a half inches long. Inhabits the British and Mediterranean seas.

This genus is divided into three sections.—* The anterior primary tooth, with a striated cleft, or the margin dentated.—** Anterior primary tooth not striated in its cleft, nor dentated in the margin.—*** The internal margins crenated or dentated.

Genus 23.—EXOLETA.—*Brown.*

Generic Character.—Shell strong, orbicular, beaks much turned to one side, beneath which is a short cordiform impression; hinge with three primary teeth, two of which are contiguous, and the other divergent, which is broad in the right valve, and cleft in the centre, to receive that of the opposite valve, which is slender; cartilage situated within the outer surface of the shell; margins very broad, and somewhat concave; edges very thick.

Exoleta orbiculata.—THE ORBICULAR EXOLETA.

Plate LXXXIX. fig. 23.

Orbicular, strong, with regular coarse, close set transverse striæ; generally white or pale brown, with sometimes three or four brown radiations emanating from the umbo, and terminating in the margin; inside white. Two inches long. Inhabits the European seas.

Genus 24.—CYPRINA.—*Lamarck.*

Generic Character.—Shell equivalve, inequilateral, obliquely heart-shaped, beaks obliquely bent; hinge with three unequal teeth, approximate at the base, and slightly divergent above; lateral cardinal tooth remote, which is sometimes obsolete; ligament exterior, and partly sunk between the beaks.

Cyprina Islandica.—THE ISLANDIC CYPRINA.

Plate LXXXIX. fig. 22.

Suborbicular, convex, strong, irregularly striated; covered with a deep black brown epidermis; white within. Three and three-fourth inches long. Inhabits the Atlantic ocean and British seas.

Genus 25.—LASSEA.—*Leach.*

Generic Character.—Equivalve, inequilateral; hinge not quite central; umbo prominent; hinge with two nearly obsolete pri-

mary teeth, lateral ones very conspicuous ; valves convex ; margin plain.

Lasæa rubra.—THE RED LASÆA.

Plate LXXXIX. fig. 16.

Convex, smooth, glossy, pellucid, reddish-pink. Fourth of an inch long. Inhabits the British seas.

SECTION II.—FLUVIATILE.

Shells with lateral teeth at the hinge, and covered with a spurious epidermis.

Genus 26.—GALATHEA.—*Lamarch*.

Generic Character.—Equivalve, subtrigonal, covered with a vitreous greenish epidermis ; two furrowed primary teeth in the right valve, joined at their base ; and three in the other, the intermediate one being separate and protruding ; ligament exterior, short, turgid, and prominent ; the cordiform mark protruding in the centre.

Galathea radiata.—THE RAYED GALATHEA.

Plate LXXXIX. fig. 20.

Somewhat trigonal, gibbous towards the base ; covered with a yellowish-green thin epidermis, beneath which it is radiated with pale chestnut. Three and a half inches long. Inhabits the rivers of Ceylon.

Genus 27.—CYRENA.—*Lamarch*.

Generic Character.—Shell roundish and trigonal ; turgid and ventricose, inequilateral, solid, with the beaks usually decorticated ; hinge with three teeth in each valve ; lateral teeth two, one of which is near the primary ones ; ligament exterior ; a great part of which is inserted.

Cyrena fluminea.—THE RIVER CYRENA.

Plate XC. fig. 1.

Heart-shaped, gibbous, greenish-brown ; transversely sulcated ; variegated with white and violet in the inside. One inch long. Inhabits the rivers of China.

This genus has two sections.—* With the lateral teeth crenulated or serrated.—** Having the lateral teeth entire.

Genus 28.—CYCLAS.—Lamarch.

Generic Character.—Ovate, globular, transverse, and equi-valve, with the beaks tumid; cardinal teeth very small, sometimes barely perceptible; *or with two in each valve, of which one is complicated*; or only one plicated or lobed tooth in one valve, and two in the other; lateral teeth transversely elongated, compressed, and lamelliform; ligament external.

Cyclas cornea.—THE HORNY CYCLAS.

Plate XC. fig. 2.

Suborbicular, convex, thin, pellucid, with fine concentric striae; covered with a horn-coloured epidermis; bluish white within. Three-fourths of an inch long. Inhabits rivers of Europe.

Genus 29.—PISIDIUM.—Pojffer.

Generic Character.—Animal, instead of a tubular trachea, with a narrow fleshy projection next the fore part of the shell; the foot long and thin; shell equi-valve, transverse, sides unequal, completely closing; in the right valve one, and in the left valve two opposite, very small primary teeth; behind and before, two thin lamellar side teeth; those of the latter cleft in the right valve, in order to receive the opposite ones.*

Pisidium obliquum.—THE OBLIQUE PISIDIUM.

Plate LXXXVIII. fig. 23.

Nearly oval, with unequal sides, ventricose, pellucid; striated concentrically, having the appearance of ribs under a lens; yellowish ash-coloured; inside bluish and not glossy; beaks somewhat produced, and pointing towards the anterior slope. Length three lines, breadth nearly five lines. Inhabits rivers and streams in Britain.

* There is sufficient difference betwixt the animals of the *Cyclas* and *Pisidium* to warrant the formation of distinct genera; those of the former having a shorter and thicker foot in proportion to the size of the animal, and with a double crested tube at the posterior termination of the coak, whereas the foot of the latter is a single tube. The characters, therefore, in italics, of the genus *Cyclas*, are inapplicable to that genus, and obtain in that of *Pisidium*.

SECTION III.—TENUIPEDES.

The mantle barely united before; foot small, narrow, and compressed; shell having but a moderate gape.

TRIBE I.—NYMPHACEA.

Having never more than two primary teeth in the same valve; shell frequently gaping at the lateral extremities; ligament external; umbones usually projecting outwards. The species are all littoral.

* Without lateral teeth.

Genus 30.—CRASSINA.—*Leach.*•

Generic Character.—Suborbicular, transverse, equivalve, subinequilateral, close; hinge with two strong, diverging, primary teeth in the right valve, and two unequal ones on the other; ligament external, broader than long.

Crassina Scotica.—THE SCOTTISH CRASSINA.

Plate XC. fig. 3.

Somewhat heart-shaped, a little compressed, with regular parallel grooves and ribs; impressions under the beak lanceolate; covered with a yellow-brown epidermis; inside pure white; margin broad and plain. One inch long. Inhabits the Scottish and Devonshire coasts.

Genus 31.—CAPSA.—*Lamarck.*

Generic Character.—Transverse, equivalve, valves approximate and close; with three primary teeth in the right valve, and a single bifid tooth in the left, inserted into a cavity in the opposite one; destitute of lateral teeth; ligament external.

Capsa lavigata.—THE POLISHED CAPSA.

Plate XC. fig. 4.

Triangular, subequilateral, obsoletely striated transversely; covered with a greenish-yellow epidermis; inside violet towards the umbones. Two inches long. Inhabits the Indian ocean.

• The genus was instituted by my ingenious friend Dr Leach, and communicated by him to Lamarck, who adopted it, without acknowledging its having been pointed out to him by the Dr

**** Shells with one or two lateral teeth.**

Genus 32.—DONAX.—Linnaeus.

Generic Character.—Transverse, equivalve, inequilateral; with the anterior side very short and obtuse; two primary teeth, in one or both valves; and one or two lateral teeth, more or less apart; ligament external, short, inserted at the posterior impression.

Donax trunculus.—THE TRUNCATED DONAX.

Plate XC. fig. 5.

Oblong, glossy, finely striated, and radiated longitudinally; transversely banded with purple; white, and clouded with purple within; margin crenulated. One inch and a quarter broad. Inhabits the seas of Europe.

This genus consists of two sections:—* Shells with the margins entire.—** Margins crenated.

Genus 33.—LUCINA.—Lamarch.

Generic Character.—Suborbicular, inequilateral; beaks small, pointed, and oblique; hinge variable, sometimes with two divergent teeth, one of which is bifid, but changing with age; two lateral teeth, the intermediate one obsolete; the posterior nearest the primary ones; two distinct muscular impressions, the posterior one prolonged.

Lucina undata.—THE WAVED LUCINA.

Plate XC. fig. 7.

Orbicular, thin, convex, undulated with fine irregular striae; pale straw-coloured yellow, and white in the inside; margin glossy and plain. Inhabits the British seas.

Genus 34.—MYSIA.—Leach.

Generic Character.—Suborbicular, inequilateral; beaks small, pointed, and very slightly turned to one side; hinge with two primary teeth, joined at their base and divergent, behind which is an oblique descending cavity; with one strong muscular impression in each valve; margin thin and entire; ligament exterior.

Mysia rotundata.—THE ROUNDED MYZIA.

Plate XC. fig. 6.

Orbicular, somewhat convex, thin, sub-pellucid, and obscurely striated; umbones small and oblique. Three quarters of an inch long. Inhabits the British seas.

Genus 35.—CORBIS.—Cuvier.

Generic Character.—Transverse, equivalve, slightly depressed; beaks small and incurved; hinge with two primary teeth, and two lateral ones, of which the posterior one is nearest the cardinal teeth; muscular impressions simple; ligament exterior.

Corbis fimbriata.—THE FRINGED CORBIS.

Plate XC. fig. 8.

Very thick, white, transversely oval, gibbous, longitudinally striated, with transverse undulated furrows; the margins crenulated; with depressions somewhat lanceolate. Two inches and a half broad. Inhabits the Indian ocean.

Genus 36.—ARCOPAGIA.—Leach.

Generic Character.—Transverse, equivalve; right valve sub-depressed; umbones very small, and nearly straight; with two primary teeth in each valve, both of the larger ones being cleft; left valve with two remote lateral teeth, that on the anterior slope large, with a sinus betwixt it and the margin for the reception of the lateral tooth in the opposite valve; muscular impression extremely large, and defined by a deep irregular groove; near its lower centre are several strong punctiform marks; margin very broad, well defined and glossy; ligament subexternal.

Arcopagia crassa.—THE THICK ARCOPAGIA.

Plate XC. fig. 9.

Suborbicular, strong, thick; upper valve flat; with coarse, thick-set, transverse striae; pale yellow, radiated longitudinally; inside white, with a large patch of yellow or pink; muscular impressions very deep. One inch and a half long. Inhabits the British seas.

Genus 37.—TELLINIDES.—Lamarck.

Generic Character.—Transverse, inequilateral, flattened, a lit-

the gaping laterally; beaks small, and sub-depressed; margin plain, irregular, but not inflected; two divergent primary teeth in each valve, and two lateral teeth, which are somewhat obsolete, in one valve.

Tellinides rosea.—THE ROSEATE TELLINIDES.

Plate XC. fig. 10.

Ovate, oblique, polished, thin, and of a beautiful rosy hue; slightly wrinkled transversely. Half an inch broad. Inhabits the Bay of Naples.

Genus 38.—TELLINA.—*Linnaeus*.

Generic Character.—Transverse or orbicular; both valves generally flattened; the anterior side angular, and inflexed on the margin with a flexuous irregular band; with one or two primary teeth in the same valve, and two lateral teeth, frequently remote; ligament exterior.

There are two sections of this genus:—* Transversely oblong; and, ** Orbicular.

Tellina depressa.—THE DEPRESSED TELLINA.

Plate XC. fig. 11.

Oval, flat, pointed at the smaller end, and slightly reflected; pale yellowish, faintly striated concentrically; covered with a pale brown transparent epidermis. One inch and three quarters broad. Inhabits the Mediterranean sea.

*** Solenaires.

Genus 39.—PSAMMOTÆA.—*Lamarck*.

Generic Character.—Transverse, ovate, or oblong-ovate; slightly gaping at the sides; each valve with a single primary tooth, sometimes in one valve only; ligament external.

Psammotæa violacea.—THE VARIEGATED PSAMMOTÆA.

Plate XC. fig. 13.

Transversely ovate-oblong, sub-ventricose; radiated with purple; transversely striated. Two inches broad. Inhabits the Australian seas.

Genus 40.—PSAMMOBIA.—Leach.

Generic Character.—Transverse, elliptical, or oblong ovate, flattened, slightly gaping at one side; beaks prominent; two primary teeth in the left valve, and one in the opposite one.

Psammobia Ferroensis.—THE FAROE PSAMMOBIA.

Plate XC. fig. 12.

Oblong-oval; white, radiated with crimson; finely striated transversely; valves obliquely truncate. One inch and a half broad. Inhabits the European seas.

Genus 41.—SANGUINOLARIA.—Lamarch.

Generic Character.—Transverse, somewhat oval, slightly gaping at the lateral extremities; upper margin arched, and not parallel to the inferior one; hinge with two approximate teeth in each valve.

Sanguinolaria rosea.—THE ROSEATE SANGUINOLARIA.

Plate XC. fig. 15.

Semi-orbicular, smooth, shining, and convex; of a beautiful rose-colour towards the umbones, which becomes gradually paler as it descends; with acute transverse striae. One inch and a half broad. Inhabits the sea at Jamaica.

TRIBE II.—LITHOPHAGI.

Shells which bore into clay and other substances, with accessory plates, and more or less gaping at their anterior side; ligament external.

Genus 42.—VENERUPIS.—Lamarch.

Generic Character.—Transverse, inequilateral; posterior side short, the anterior one slightly gaping; hinge with two primary teeth in the right valve, and three in the left one, and sometimes with three in each; teeth small, approximated, parallel, and slightly divergent; ligament external.

Venerupis perforans.—THE PERFORATING VENERUPIS.

Plate XC. fig. 16.

Sub-rhombic, transversely striated, wrinkled on the anterior side; brown, with a white inside, sometimes with a tinge of

purple. Three quarters of an inch broad. Inhabits the British seas.

Genus 43.—PETRICOLA.—Lamarck.

Generic Character.—Subtrigonal, transverse, inequilateral; posterior side rounded, and the anterior attenuated, and slightly gaping; hinge with two teeth in each valve, or in one valve only.

Petricola pholadiiformis.—THE PHOLAS-SHAPED PETRICOLA.
Plate XC. fig. 17.

Transversely elongated; umbones very small; with transverse, rough, prickly striae; posterior side extremely short. Three inches long. Inhabits the Australian seas.

Genus 44.—SAXICAVA.—Lamarck.

Generic Character.—Inequilateral and transverse; the anterior upper margin gaping; hinge nearly without teeth; ligament external.

Saxicava præcisa.—THE ABBREVIATED SAXICAVA.
Plate XC. fig. 18.

Oblong, wrinkled, one valve larger than the other, truncated at the posterior end; of a pale horn-colour. Three quarters of an inch broad. Inhabits the British seas.

TRIBE III.—CORBULACEA.

Inequivalve shells, with an interior ligament; one of the beaks always projecting beyond the other.

Genus 45.—PANDORA.—Lamarck.

Generic Character.—Shell regular, inequivalve, inequilateral, and transversely oblong; upper valve flattened, and the under one convex; hinge with two oblong diverging cardinal teeth, in the upper valve, and the other valve with two oblong grooves; ligament external.

Pandora rostrata.—THE BEAKED PANDORA.
Plate XC. fig. 19.

White, oblong, much produced towards the beak; one valve

nearly flat, the other convex; rounded at the anterior end. One inch broad. Inhabits the Mediterranean and British seas.

Genus 46.—CORBULA.—*Bruguere.*

Generic Character.—Shell regular, inequivalve, inequilateral; with a conical, bent, ascending, primary tooth in each valve; a small pit at its side; destitute of lateral teeth; ligament external.

Corbula nucleus.—THE KERNEL CORBULA.

Plate XC. fig. 20.

Somewhat triangular, strong, with the under valve much larger than the upper one; transversely striated; covered with a thick, brown epidermis. Half an inch long. Inhabits the British seas.

TRIBE IV.—MACTRACÆA.

Equivale shells, frequently gaping at the lateral extremities; with an internal ligament, or partly external, and the animal having a small compressed foot.

* Ligament seen externally or double.

Genus 47.—AMPHIDESMA.—*Lamarch.*

Generic Character.—Inequilateral, transverse, suboval or somewhat rounded; with sides slightly gaping; hinge with one or two cardinal teeth, and a narrow groove for the internal ligament; ligament double, the external one short, the internal one fixed in the internal grooves.

Amphidesma reticulata.—THE RETICULATED AMPHIDESMA.

Plate XC. fig. 24.

Sub-orbicular, sub-diaphanous, compressed, finely reticulated; yellowish-white. One inch and a quarter long. Inhabits the West Indian seas.

Genus 48.—SOLEMYA.—*Lamarch.*

Generic Character.—Inequilateral, equivalve, transversely elongated, extremities obtuse, with the epidermis smooth, shining, and projecting; beaks not prominent and hardly distinct;

a dilated, compressed, somewhat oblique cardinal tooth in each valve; slightly concave above for the reception of the ligament; ligament partly external and partly internal.

Solenya Mediterranea.—THE MEDITERRANEAN SOLEMYA.

Plate XC. fig. 23.

Transversely oblong; blackish-brown; longitudinally ribbed, with imbricated, projecting foliations; inside white. Inhabits the Mediterranean sea.

Genus 49.—TELLIMYA.—Brown.

Generic Character.—Shell equivalve, inequilateral, sub-orbicular or transverse; left valve without cardinal teeth, but having two projecting lateral teeth with a groove in their centre, and sometimes one or two teeth on the right side; right valve with two recurved prominent teeth; margin entire.

This genus consists of two sections.—* Shells orbicular.
** Shells transverse.

Tellimya tenuis.—THE THIN TELLIMYA.

Plate XC. fig 14.

Nearly orbicular, white, thin, ventricose, and shining; one valve, with two teeth locking into a triangular void in the opposite one, with a transverse lamina on each side. One-third of an inch long. Inhabits the British seas.

Genus 50.—UNGULINA.—Lamarck.

Generic Character.—Longitudinal or subtransverse, rounded above, subequilateral, with the valves close; beaks decorticated; one short primary cleft tooth in each valve, with an oblong groove divided in the middle of the margin; ligament internal, inserted in a pit.

Ungulina transversa.—THE TRANSVERSE UNGULINA.

Plate XC. fig. 22.

Transversely round, rugose, of a yellowish-brown colour.

** Shells with an internal ligament, and the valves not gaping at the sides.

Genus 51.—ERYCINA.—Lamarck.

Generic Character.—Transverse, subinequilateral, equivalve, rarely gaping; with two primary teeth, unequal, diverging, with a pit interposing; lateral teeth two, oblong, compressed, short, and inserted; ligament internal, situated in a pit.

Erycina striata.—THE STRIATED ERYCINA.

Plate XC. fig. 21.

Yellowish-green, with strong transverse striae. One inch long. Inhabits the Indian ocean.

Genus 52.—CRASSATELLA.

Generic Character.—Inequilateral, suborbicular or transverse, close; primary teeth somewhat divergent, with a hollow at the side; no lateral teeth, nor obsolete ones; ligament internal, inserted into a pit in the hinge.

Crassatella Kingicola.—THE KING'S ISLAND CRASSATELLA.

Plate XCI. fig. 1.

Ovate, orbicular; yellowish-white; with obsolete rays; very minutely striated transversely; the umbones somewhat plicated. Two inches long. Inhabits the sea at King's Island, New Holland.

Genus 53.—LIGULA.—Montagu.

Generic Character.—Equivalve, with a broad transverse tooth in each valve, projecting inwards, furnished with a pit for the reception of the cartilage, and in some species a minute tooth.

Ligula prætenuis.—THE VERY THIN LIGULA.

Plate XCI. fig. 2.

Oval, flat, thin, brittle; a little gaping; valves with a single, spoon-like tooth in each, projecting horizontally inwards; white, with a few concentric striae. One inch broad. Inhabits the British seas.

*** Ligament internal; shell gaping at the sides.

Genus 54.—MACTRA.—Linnaeus.

Generic Character.—Transverse, inequilateral, subtrigonal;

sides slightly gaping; beaks prominent; one primary compressed tooth in each valve, and an adjacent heart-shaped cavity; two lateral compressed teeth, situated near the hinge, and inserted; ligament internal and placed in the pit of the hinge.

Mastra truncata.—THE TRUNCATED MASTRA.

Plate XCI. fig. 3.

Strong, opaque, white; truncated on both sides; with a few concentric wrinkles. One inch and a half long. Inhabits the British coasts.

Genus 55.—MASTRINA.—Brown.

Generic Character.—Subtriangular, inequilateral; umbo prominent and obtuse; left valve having a strong triangular, slightly bifid tooth; with triangular transverse pits on each side, for the reception of two small depressed lateral teeth in the opposite valve, and a triangular pit between them; ligament external.

Mastrina triangularis.—THE TRIANGULAR MASTRINA.

Plate XCI. fig. 30.

Strong, opaque, white; inside white, not very glossy; margin strongly crenated. Length, one eighth of an inch. Inhabits the sea on the Dorsetshire and Kentish coasts.

Genus 56.—LUTRARIA.—Lamarck.

Generic Character.—Inequilateral, transversely oblong, or rounded, gaping at the extremities; hinge with one tooth, which is somewhat complicated, or two teeth of which one of them is simple, with an adjoining deltoid hollow, which is oblique, and prominent within; no lateral teeth; ligament internal; attached in a pit.

Lutraria elliptica.—THE OVAL LUTRARIA.

Plate XCI. fig. 4.

Oblong-oval, nearly smooth, having a few concentric, nearly obsolete wrinkles; and some diagonal striae at the ends of the valves; of a fine yellow, or greenish-brown; inside white. Five inches broad. Inhabits the seas of Europe.

There are two sections.—* Shell transversely oblong.
 ** Orbicular.

SECTION IV.—CRASSIPEDES.—The mouth united in front, or partly so; foot thick, posterior; shell gaping when closed.

TRIBE I.—MYARIA.

Shells having a broad spoon-like tooth in each valve, or in one only; gaping at both extremities, or only at one.

Genus 57.—ANATINA.—*Lamarch.*

Generic Character.—Transverse, subequivalve, gaping at both valves, or in one only; no cardinal teeth; one broad primary tooth in both valves, projecting interiorly; a lateral plate running obliquely under the primary teeth.

Anatina declivis.—THE SLOPING ANATINA.

Plate XCI. fig. 5.

Oval, thin, brittle, a little gaping near the end, where it is truncated, slightly wrinkled concentrically; yellow sand-colour. Two inches broad. Inhabits the British seas.

Genus 58.—MYA.—*Linnaeus.*

Generic Character.—Transverse, gaping at both ends, with one large dilated projecting and nearly vertical primary tooth in the left valve, and a hollow in the opposite valve; ligament internal, inserted in the hollow of the primary tooth, and in the pit of the other valve.

Mya truncata.—THE TRUNCATED MYA.

Plate XCI. fig. 6.

Suboval, truncated, and gaping greatly at the smaller end; much rounded at the other; covered with a yellowish-brown epidermis; wrinkled transversely; inside white. Three inches broad. Inhabits the British coasts.

Genus 59.—GALEOMMA.—*Turton.*

Generic Character.—Equivulve, inequilateral, transverse, with a large oval gape at the front margin; hinge without teeth; ligament internal.

Galeomma Turtoni.—TURTON'S GALEOMMA.

Plate LXXXVIII. fig. 8.

Tumid in the middle, and gradually sloping to the sides; dull milk-white, covered with short interrupted opaque lines; beaks prominent and central. Breadth nearly an inch. Inhabits the English channel.

Genus 60.—MAGDALA.—*Leach*.

Generic Character.—Transversely oblong-ovate, gaping at one end; beaks obtuse; hinge without teeth, but provided with a transverse unconnected plate, attached to each valve by a cartilage and an oblique descending groove; cartilage internal.

Magdala striata.—THE STRIATED MAGDALA.

Plate XCI. fig. 12.

Ovate-oblong, thin, pellucid, white; posterior side rounded, and the anterior side truncated and gaping, with longitudinal striæ and concentric wrinkles; inside pearly. One inch broad. Inhabits the British seas.

Genus 61.—MYATELLA.—*Brown*.

Generic Character.—Sub-parallelogramical, transverse, anterior and truncated; the valves reflex, forming a hiatus; umbo small placed nearest the posterior end; with one erect, broad, doubly channelled tooth in the left valve, which locks into a corresponding cavity in the other.

Myatella striata.—THE STRIATED MYATELLA.

Plate LXXXIX. fig. 12.

Subpellucid, white, of a delicate texture, longitudinally striated; inside white, slightly reflecting a nacreous hue. Length, half an inch; breadth, an inch. Inhabits the sea at Tenby in Wales.

Genus 62.—CRENELLA.—*Brown*.

Generic Character.—Oblong-ovate, equilateral, ventricose; beaks obtuse, slightly turned to one side; hinge without teeth, but with a flattened, slightly crenated plate in each valve; the right valve with a triangular, horizontal, projecting, reflexed plate, and the left one with an oblique plate, both of which are slightly crenated.

Crenella elliptica.—THE OVAL CRENELLA.

Plate XCI. fig. 13.

Ovate, ventricose; with decussated striæ; greenish-yellow, inside nacre, the margins crenulated. One-eighth of an inch long. Inhabits the coasts of Zetland and Argyle.

Genus 63.—SPENIA.—Turton.

Generic Character.—Transversely oblong-ovate; slightly tortuous; hinge without teeth, but with the cardinal margin flattened.

Spenia Binghami.—BINGHAM'S SPENIA.

Plate XCI. fig. 14.

Upper valve flat, much smaller than the under, which is convex, incurved at the extremity, and envelopes the smaller valve; covered with a reddish-brown epidermis; inside bluish-white. Half an inch broad. Inhabits the Devonshire coast.

TRIBE II.—SOLENIDES.

Shells transversely elongated, destitute of accessory pieces, and gaping at the lateral extremities only; ligament exterior.

Genus 64.—GLYCIMERIS.—Lamarch.

Generic Character.—Transverse, gaping widely at each extremity; hinge callous, destitute of teeth; ligament external.

Glycimeris siliqua.—THE POD GLYCIMERIS.

Plate XCI. fig. 7.

Transversely oblong; covered with a black epidermis; umbones decorticated; internal disk of the valves white, callous, and thick. Two inches and a half broad. Inhabits the North seas.

Genus 65.—PANOPEA.—Lamarch.

Generic Character.—Equivalve, transverse, gaping unequally at the sides; one conical primary tooth in one valve, and a compressed, short, ascending callosity on each side; ligament external, affixed on the elongated side of the shell, over the callosities.

Panopea Aldrovandi.—ALDROVANDUS'S PANOPEA.

Plate XCI. fig. 8 and 9.

Transversely elongated, undulated; concentrically wrinkled; of a yellow fawn-colour. Inhabits the Mediterranean.

Genus 66.—SOLEN.—*Linnaeus*.

Generic Character.—Equivalue, transversely elongated, gaping at both extremities; beaks very small, always short; primary teeth small, varying in number, sometimes none, and rarely a pit between them; ligament external.

There are three sections in this genus:—* Shells with a terminal hinge, and anteriorly truncated. ** Primary teeth somewhat distant from the anterior margin. *** Hinge situated nearer the middle than the anterior end.

Solen ensis.—THE SABRE SOLEN.

Plate XCI. fig. 11.

Linear, sabre-shaped, somewhat reflected at the end next the hinge; in each valve a single compressed tooth without laminae; olive-brown towards the base of the shell, and next the apex brownish-purple. From five to seven inches broad. Inhabits the seas of Europe.

TRIBE III.—PHOLADARIA.

Valves with accessory pieces; or gaping considerably anteriorly.

Genus 67.—GASTROCHENA.—*Spengler*.

Generic Character.—Equivalue, somewhat wedge-shaped; with a very large, oval, oblique, anterior opening betwixt the valves; hinge linear, marginal, and without teeth.

Gastrochena modiolina.—THE MODIOLIFORM GASTROCHENA.

Plate XCI. fig. 16.

Oval, thin, brittle, gaping at the side; of a light reddish-brown; inside bluish-white. Three-fourths of an inch long. Inhabits the British coasts.

Genus 68.—PHOLAS.—Linnaeus.

Generic Character.—Animal without a tubular sheath, projecting anteriorly into two united tubes, frequently surrounded by a common skin, and the posterior extremity provided with a short muscular foot, flattened at its extremity.—Shell bivalve, equivalve, transverse, gaping at both extremities, with various accessory pieces either on the hinge or below it; inferior margin of the valves inflected.

Pholas crispatus.—THE CURLED PHOLAS.

Plate XCI. fig. 17.

Somewhat oval; reticulated on the anterior half, and separated from the plain wrinkled half by a broad furrow down the middle. Two inches long and three broad. Inhabits the British coasts.

TRIBE IV.—TUBICOLA.

Shell contained in a testaceous sheath distinct from its valves, incrusted wholly or partly in the wall of this tube, or projecting outwards.

Genus 69.—TEREDO.—Linnaeus.

Generic Character.—Animal elongated, worm-shaped, invested in a testaceous tube, boring into wood; with two anterior, projectile, short tubes, and two opercular processes, adhering to the sides of the tubes; with a posterior short muscle, protected by a bivalve shell.—Tube testaceous, cylindrical, and tortuous, pervious at both extremities, and covering the animal.—Shell bivalve, placed externally, and outside the tube.

Teredo navalis.—THE SHIP TEREDO, OR SHIP-WORM.

Plate XCI. figs. 18 to 22.

Cylindrical, taper, smooth, white, somewhat flexuous, finely striated longitudinally. Inhabits the European seas, in timber.

Genus 70.—TEREDINA.—Lamarck.

Generic Character.—Tube testaceous, tubular, cylindrical, closed at the posterior extremity, but exhibiting the two valves of the shell; anterior extremity open.

Tercedina personata.—THE MASQUED TEREDINA.

Plate XCI. fig. 22.

Shell consisting of a straight tube, like the stump of a tree, with a club-shaped termination, the club forming of several similar shaped lobes. Fossil from Courtagnon.

Genus 71.—SEPTARIA.—*Lamarck*.

Generic Character.—With a very long testaceous tube, gradually attenuated anteriorly, and appearing as if divided interiorly by vaulted unfinished partitions; anterior end of the tube terminated by two other slender tubes, which are not divided.

Septaria arenaria.—THE SAND SEPTARIA.

Plate XCI. fig. 23.

Tubular, tapering, terminating in a slender undivided tube. Found in sand on the shores of the Indian sea.

Genus 72.—FISTULANA.—*Lamarck*.

Generic Character.—With a tubular testaceous sheath, tumid, posteriorly closed, and attenuated at the anterior end; open at the summit, and containing an unattached bivalve shell; valves of the shell equal, and gaping when shut; animal provided with two tubular appendages in front.

Fistulana gregata.—THE GREGARIOUS FISTULANA.

Plate XCI. figs. 24 to 26.

Sheath doubly club-shaped, congregating; the shells angularly arcuated, with double, angulated, serrated wings. Minute.

Genus 73.—CLAVAGELLA.—*Lamarck*.

Generic Character.—Sheath tubular, testaceous, attenuated, and open before; terminating posteriorly in an oval, subcompressed club, roughened by spiniform tubes; club showing on one side a valve of the shell, attached to its walls; the other valve unattached, in the sheath.

Clavagella aperta.—THE OPEN CLAVAGELLA.

Plate XCI. fig. 27 and 28.

An erect tube, adhering to another body; with a funnel-

shaped, expanding, entire, and waved aperture ; provided with an ovate face-valve,

Genus 74.—**ASPERGILLUM.**—*Lamarck.*

Generic Character.—Sheath tubular, testaceous, attenuated towards the anterior termination, where it is open, and thickened posteriorly into a club, with the valve of the shell incrustated on its walls ; club convex, with a terminal disk, perforated with scattered, somewhat tubular holes, having a fissure in the centre.

Aspergillum Javanum.—**THE JAVA ASPERGILLUM.**

{Plate XCI. fig. 29.

Smooth, club-shaped, the apex surrounded by fimbriated rays. Five inches long. Inhabits the sea at Java.

CLASS III.—CIRRIPEDA.

The animals are soft, destitute of head or eyes, covered with a shell, which is fixed to other substances, and incapable of locomotion. The body is inarticulated, provided with a mantle, having tentacular, cirrous, or many-pointed arms or feelers above.

The class Cirripeda is divided by Lamarck into two orders:—**I. PEDUNCULATA.** The body supported by a tubular moveable peduncle, the base of which is attached to extraneous substances in the ocean, such as stones, wood, &c. ; the mouth is usually placed below.—**II. SESSILIA.** The body without a peduncle, and attached to extraneous substances ; the mouth usually at the top.

All the Cirripeda are multivalve, or composed of a number of pieces.

ORDER I.—PEDUNCULATA.

Body supported on a tubular peduncle.

Genus 1.—OTION.—Leach.

Generic Character.—Body pedunculated, enveloped in a membranous tunic, which is ventricose above; two horn-like tubes, directed backwards, truncated, open at their points, and situated in the apex of the tunic; having a lateral opening, with many articulated and ciliated arms.—Shell consisting of two small testaceous semilunar valves, attached near the lateral opening.

Otion Blainvillii.—BLAINVILLE'S OTION.

Plate XCII. fig. 1.

Ash-coloured; the body and horns spotted with black. Inhabits the North seas.

Genus 2.—CINERAS.—Leach.

Generic Character.—Body pedunculated, and encased in a membranous tunic, which is swollen above, with an opening below the summit, from which protrude many ciliated, articulated arms.—Shell having five testaceous, oblong, separate valves, two of which are on the sides of the gap, and the other dorsal.

Cineras auratus.—THE EARED CINERAS.

Plate XCII. fig. 2.

Greenish ash-colour, clouded and streaked with black; wrinkled towards the base. Inhabits the coasts of England.

Genus 3.—POLLICIPES.—Leach.

Generic Character.—Body covered by a shell, and supported on a tubular, tendinous, scaly peduncle; with many tentacular arms.—Shell with compressed sides, and numerous separated valves, unequal in number, thirteen or more; the lower side ones the smallest.

Pollicipes cornucopia.—THE CORNUCOPIA POLLICIPES.

Plate XCII. fig. 3.

Peduncle covered with imbricated scales, the base of the scales towards the bottom of the peduncle rounded, and pointing upwards. Inhabits the European seas.

Genus 4.—SCALPELLUM.—Leach.

Generic Character.—Body covered by a shell, and supported

by a tubular, scaly peduncle; multivalve, but the valves never exceeding thirteen in number, which are concentrically striated, and frequently with a central pointed inclined knob.

Scalpellum vulgare.—THE COMMON SCALPELLUM.

Plate XCII, fig. 4.

Valves rough, the dorsal one compressed; covered with short hairs; peduncles short, annulated, and hairy. Inhabits the British seas.

Genus 5.—ANATIFA.—*Bruguiere*.

Generic Character.—Body covered with a shell, supported by a tubular tendinous peduncle; with long, numerous, and unequal tentacular arms, which are articulated and ciliated, and emanating from the summit on one side.—Shell compressed on the sides, with five contiguous and unequal valves; the lower lateral ones the largest.

Anatifa levis.—THE SMOOTH ANATIFA.

Plate XCII, fig. 5.

With five smooth valves; the dorsal valve rounded at the sides, and slightly carinated; peduncle very long, of a scarlet colour. Inhabits the British seas.

ORDER II.—SESSILIA.

Body without a peduncle, and inclosed in a multivalve shell, seated immediately on marine bodies, or rocks; mouth and tentacula placed in the apex, or upper part of the body.

* With a bivalve operculum.

Genus 1.—PYRGOMA.—*Savigny*.

Generic Character.—Seated univalve, globularly ventricose, convex above, and open at the apex; opening small, elliptical, provided with a bivalve operculum.

Pyrgoma crenata.—THE CRENATED PYRGOMA.

Plate XCII, fig. 6.

With radiated ribs, and crenated round the margins; of a pale violet colour.

Genus 2.—CREUSIA.—Leach.

Generic Character.—Body sitting, subglobular, inclosed in an operculated shell; having three or four pairs of tentacular arms. Shell sessile, fixed, orbicular, convexo-conical, consisting of four united unequal valves; operculum interior and bivalve.

Creusia verruca.—THE WARTED CREUSIA.

Plate XCII. fig. 7.

White; slightly depressed, with interwoven obliquely striated valves; the margin at the base irregularly serrated. One-fourth of an inch broad. Inhabits the British seas.

**** Opercula with four valves.**

Genus 3.—ACASTA.—Leach.

Generic Character.—Shell sessile, ovate, subconic, compressed, and consisting of six parts, two of the valves small, and four large, slightly united, having an orbicular plate concave internally at the base.

Acasta Montagui.—MONTAGU'S ACASTA.

Plate XCII. fig. 8, 9.

Valves erect, triangular, acute, with muricated ascending spines. Inhabits the British seas.

Genus 4.—ADNA.—Leach.

Generic Character.—Cup-shaped, sessile, shell composed of one part; aperture lozenge-shaped; with four valves.

Adna Anglica.—THE ENGLISH ADNÄ.

Plate XCII. fig. 28.

Shell and base externally, and slightly ribbed; of a fine rose colour; operculum transversely striated. Inhabits the Devonshire coast, attached to the *Coryophyllia Anglica*.

Genus 5.—BALANUS.—Bruguiere.

Generic Character.—Body sessile, inclosed in an operculated shell; branchiae numerous, placed in two rows, unequal, articulated, ciliated; each composed of two cirri, supported by a peduncle, and exsertile; mouth with four transverse and dentated

jaws, and provided with four hairy palpi-like appendages.—Shell sessile, conical, composed of four valves, locked together, closed at the base by a testaceous plate; aperture subtrigonal or elliptical; operculum internal, and consisting of four moveable valves.

Balanus candidus.—THE WHITE BALANUS.

Plate XCII. fig. 10 and 11.

White; valves nearly smooth; operculum strongly ridged transversely with longitudinal, nearly obsolete striæ. Two inches broad at the base. Inhabits the Frith of Forth.

Genus 6.—CORONULA.—*Lamarch*.

Generic Character.—Body seated, enveloped in a shell, with small setaceous and cirrous arms.—Shell sessile, suborbicular; valves apparently indivisible, conoid, or conically truncated at the extremities, with very thick walls, and interiorly hollowed in radiating cells; operculum having four obtuse valves.

Coronula diadema.—THE CROWN CORONULA.

Plate XCII. fig. 12.

Somewhat compressed, with six prominent longitudinally ribbed valves; alternating with as many depressed transversely striated ones. Found attached to the skin of whales in the North seas.

Genus 7.—TUBICINELLA.—*Lamarch*.

Generic Character.—Body inclosed in a shell, with small setaceous and unequal cirri.—Shell univalve, tubular, straight, and somewhat narrowed towards the base; surrounded with nearly equidistant transverse ribs; truncated at both ends, open at the top, and provided with a bottle-shaped operculum; consisting of four valves; base closed by a membrane.

Tubicinella balanarum.—THE WHALE TUBICINELLA.

Plate XCII. fig. 13.

Tubular, with transverse ribs, and a ring-shaped margin; operculum bottle-shaped. Found adhering to the skin of whales in the South American seas.

DIVISION III.

ARTICULATA.

THE animals of this comprehensive division have their bodies, or members, composed of segments or articulated rings, to which the muscles are attached, on their interior surface. This division contains five classes; namely, *Annelides*, *Crustacea*, *Arachnides*, *Myriapoda*, and *Insecta*.

CLASS V.—ANNELIDES.

Bodies more or less elongated, soft, naked, or inclosed in a tube, consisting of a number of segments, and having red blood. It contains three orders.

ORDER I.—SEDENTARIÆ.

Animals protected by a testaceous tube, which they never leave during life; branchiæ placed at one extremity of the body.

TRIBE I.—SERPULACEA.

The branchiæ are either separate, or covered by an operculum; tube solid and testaceous.

Genus 1.—MAGILUS.—*Lamarck*.

Generic Character.—Shell with its base bent into a spiral form, oval, with four contiguous, convex volutions, the last of

which being the largest, and prolonged into a straight waved tube, which is convex above, carinated beneath, subdepressed, and plicated on the sides; the plicæ are lamellar, close waved, vertical, and thicker on the one side than on the other.

Magilus antiquus.—THE ANTIQUATED MAGILUS.

Plate XCII. fig. 17.

Tubular, distorted, transversely wrinkled; of a pale yellowish-brown. Inhabits the sea at the Isle of France.

Genus 2.—GALEOLARIA.—*Lamarck*.

Generic Character.—Body tubicular, provided anteriorly with a testaceous operculum; tubes testaceous, very numerous, cylindrical, subangular, erect, waved, crowded, adhering by their base and open at the summit; aperture orbicular, terminating on the side by a spatulous tongue, with an orbicular operculum, consisting of from five to nine testaceous pieces above, and all attached to one side.

Galeolaria recumbens.—THE RECUMBENT GALEOLARIA.

Plate XCII. fig. 16.

White, and existing in reclining congregated masses.

Genus 3.—VERMILIA.—*Lamarck*.

Generic Character.—Body tubular, elongated, attenuated towards the posterior part, and provided towards the upper part with a simple, testaceous, orbicular operculum; tube testaceous, cylindrical, posteriorly narrowed, more or less twisted, and adhering by the side to marine substances; aperture round, and the margin frequently provided with from one to three denticles.

Vermilia triquetra.—THE TRIANGULAR VERMILIA.

Plate XCII. fig. 18.

White or reddish, rugged, variously twisted, and triangular; carinated along the back. Inhabits the coasts of Britain.

Genus 4.—SERPULA.—*Lamarck*.

Generic Character.—Body tubular, elongated, depressed, and attenuated behind; segments numerous, and narrow; small

bundles of awl-shaped bristles, in a single row on each side, and also hooked bristles; branchiæ terminal, fan-shaped, and deeply cleft into pinnated, or plumose finger-like divisions; mouth terminal, placed between the branchiæ, and surmounted by a pedicled funnel, or club-shaped operculum; tube solid, testaceous, irregularly twisted, either grouped or solitary, fixed, with a rounded and terminal aperture.

Serpula vermicularis.—THE VERMICULAR SERPULA.

Plate XCII. fig. 14.

White, cylindrical, tapering, rugged, variously curved and twisted. Inhabits the coasts of Britain.

Genus 5.—SPIRORBIS.—*Lamarck*.

Generic Character.—Body tubular, subcylindrical, posteriorly attenuated; six pinnated, retractile branchiæ, in radiated expansions, at the anterior extremity; operculum placed between the branchiæ; tube testaceous, spirally twisted into an orbicular form, depressed and adhering below.

Spirorbis Nautiloides.—THE NAUTILUS-SHAPED SPIROREIS.

Plate XCII. fig. 15.

White, nautilus-shaped, transversely wrinkled. One-eighth of an inch in diameter. Inhabits the British coasts, on Algae, &c.

TRIBE II.—AMPHITRITÆA.

Branchiæ not separate or covered by an operculum, and disposed anteriorly; tube membranous, or horny, and more or less arenaceous.

* With large branchiæ or tentacula.

Genus 6.—AMPHITRITE.—*Lamarck*.

Generic Character.—Body tubular, elongated, cylindrical, attenuated behind, with many annulated segments; and a single row of setiferous papillar, fasciculated subulate bristles, and hooked setæ; branchiæ in slender finger-shaped fasciuli, disposed like a fan, and spreading into a disk; two short subulate filaments inserted at the internal base of the branchiæ, between which is

a terminal mouth; tube elongated, cylindrical, tapering towards the base, membranous or coriaceous and generally naked.

Amphitrite ventilabrum.—THE FAN AMPHITRITE.

Plate XCII. fig. 19.

Tube tapering, incurved, and smooth; of a cream-yellow colour. Inhabits the Mediterranean sea.

Genus 7.—TEREBELLA.—*Lamarch*.

Generic Character.—Body tubular, elongated, cylindrically depressed, attenuated posteriorly, segments transverse, and sub-annulated; having a row of nodulous and setiferous papillæ on each side; with numerous filiform, twisted tentacula surrounding the mouth, and terminating in front of it; two rows of ramose branchiæ placed in a single row beneath the tentacula; tube elongated, cylindrical, attenuated and pointed at the base, membranous, consisting of agglutinated grains of sand and fragments of shells.

Terebella conchilega.—THE SHELLY TEREBELLA.

Plate XCII. fig. 21.

Tube covered with numerous fragments of broken shells agglutinated together; with three branchiæ on each side. Inhabits the coasts of Holland.

** With short branchiæ; tentacula short or wanting.

Genus 8.—SABELLARIA.—*Lamarch*.

Generic Character.—Body tubular, subcylindrical, attenuated behind; with fasciculi of subulate bristles in a single row on each side, and spatulous bristles and transverse laminae, armed with hooked setæ; anterior extremity obliquely truncated, elliptical, surmounted by six rows of brilliant spangles, three rows on either side; mouth elongated, cleft, with two lips, the under one short and interior; with small branchiæ placed near the mouth; tubes numerous, congregated in a common mass, composed of grains of sand and fragments of shells, with cup-shaped orifices.

Sabellaria crassissima.—THE THICKEST SABELLARIA.

Plate XCII. fig. 22.

Tubes long, thick, somewhat parallel, and contiguous; the openings nearly obsolete.

Genus 9.—PECTINARIA.—*Lamarck*.

Generic Character.—Body tubular, subcylindrical, attenuated behind, with a row of setaceous papillæ on either side; bristles short, fasciculated; broad, blunt and oblique in front, with golden yellow very brilliant transverse spangles; mouth elongated, with two lips, surrounded, with numerous short tentacula; four pectinated exterior branchiæ, placed on the second and third segments of the body. Tube the shape of a reversed cone, membranaceous or papyraceous; consisting of sandy particles, and not adherent.

Pectinaria Belgica.—THE BELGIC PECTINARIA.

Plate XCII. fig. 23.

Tube inversely conical, membranaceous and covered with particles of sand. Inhabits the European seas.

TRIBE III.—MALDANIÆ.

With intermediate branchiæ; tube open at both ends.

Genus 10.—DENTALIUM.—*Linnaeus*.

Generic Character.—Body tubular, conical, with the anterior extremity exsertile and surrounded by a membranous ring; mouth terminal and naked. Tube testaceous, nearly regular, slightly bent, attenuated towards the posterior extremity, and open at both ends.

* Tubes having longitudinal ribs or striæ.

Dentalium elephantinum.—THE ELEPHANTINE DENTALIUM.

Plate XCII. fig. 27.

Green, slightly bent, with ten longitudinal ribs. Three or four inches long. Inhabits the Indian and European seas.

** Tubes smooth.

Dentalium entalis.—THE TOOTH DENTALIUM.

Plate XCII. fig. 26.

White or yellowish, slightly curved, smooth and tapering to a fine point. One and a half inch long. Inhabits the British seas.

Genus 11.—BROCHUS.—*Brown*.

Generic Character.—Animal unknown.—Shell tapering, cylindrical, sub-arcuated, imperforate at the smaller end; aperture orbicular placed at the large end.

Brochus tracheiformis.—THE TRACHEIFORM BROCHUS.

Plate XCII. fig. 25.

Brown, regularly furrowed transversely. Fourth of an inch long. Inhabits the British seas.

Genus 12.—CORNUOIDES.—*Brown*.

Generic Character.—Animal unknown.—Shell cylindrical, tapering, the smaller end spiral.

Cornuoides major.—THE GREATER CORNUOIDES.

Plate XCII. fig. 23.

White, smooth, and semitransparent. Length scarcely a line. Inhabits the sea at Sandwich.

Genus 13.—CLYMENE.—*Lamarck*.

Generic Character.—Body tubular, slender, and cylindrical, with a series of setiferous papillæ on either side; anterior extremity retuse, oblique, having a semicircular margin, protruding beyond the mouth; destitute of tentacula; posterior extremity dilated, orbicularly expanded, in a funnel shape; the margin with equally slit dentations. Tube slender, open at both extremities and incrustated exteriorly with grains of sand and fragments of shells.

TRIBE IV.—DORSALIA.

With branchiæ placed on the back, or disposed longitudinally along the body.

Genus 14.—SILICUARIA.—Lamarch.

Generic Character.—Body tubular, but not well known. Shell tubular, irregularly contorted, posteriorly attenuated, sometimes spiral at the base, and open at the exterior end, with a longitudinal, subarticulated slit, which continues its whole length.

Silicuria anguina.—THE SNAKE-LIKE SILICUARIA.

Plate XCII. fig. 24.

Shell taper, undulating, with a longitudinal fissure; spiral at the extremity. Inhabits the Indian seas.

Genus 15.—ARENICOLA.—Lamarch.

Generic Character.—With a soft, long, cylindrical, annulated body, posteriorly naked, having little bundles of bristles, set in a double series in the middle part; branchiæ external, either in tufts or branches, set in the middle part of the back, and under the fasciculi of bristles; mouth terminal, naked; destitute of eyes.

ORDER II.—ANTENNATÆ.

The head is antenniform, and provided with eyes; and having a projectile proboscis frequently furnished with jaws; and setaceous papillæ, which are pediform and retractile; the branchiæ are longitudinally disposed.

SECTION I.—Branchiæ arranged in the form of complicated tufts or leaflets, or ramose, constantly large and apparent; without spines.

TRIBE I.—AMPHINOME.

Branchiæ and cirri placed above, beside all the pairs of papillæ, which are foot-shaped; destitute of jaws.

Genus 1.—EUPHROSINE.—Lamarch.

Generic Character.—Proboscis without folds; one subulate antenna; branchiæ separated into seven ramose tufts, situated

behind the feet, and reaching from one branch to the other; the upper branches having a supplementary cirrus; eyes two.

Genus 2.—PLEIONE.—Lamarch.

Generic Character.—Proboscis with a double protruding palate, and denticulated folds; five doubly articulate, subulate antennæ, the middle ones approximate, and inserted under the odd one; branchiæ ramose, and somewhat fasciculated, surrounding the superior base of the dorsal branches of the papillæ; without supplementary cirri; having four eyes, the posterior ones indistinct.

Genus 3.—CHLOEIA.—Lamarch.

Generic Character.—Antennæ five, subulate and doubly articulated, the central ones approximate and placed under the odd one; branchiæ formed like tripinnate bones, and a supplementary one at the upper branches at four or five of the first pairs of feet; two eyes.

SECTION II.—Branchiæ laminated, or crested filamentous, and pectinated on one side, sometimes quite indistinct.

TRIBE II.—EUNICÆ.

Branchiæ, when conspicuous, placed uninterruptedly at all the pediform papillæ; with many jaws, always exceeding two, fewer on the right side than on the left; without the first pair of feet.

Genus 4.—CENONE.—Lamarch.

Generic Character.—Nine jaws, four on the right and five on the left, lower ones with strong dentations; without projecting antennæ; head hidden under the first segment, which is large and rounded anteriorly; eyes indistinct.

Genus 5.—AGLAURA.—Savigney.

Generic Character.—Nine jaws, four on the right side and five on the left, the under ones with strong dentations; three short antennæ; head hidden under the first segment, with a bilobate forehead; eyes indistinct; destitute of tentacular cirri.

Genus 6.—LYSIDICE.—Lamarck.

Generic Character.—Seven jaws, three on the right and four on the left side; the under ones simple; antennæ three, short without articulations; head visible, with the forehead rounded; eyes two, distinct; without cirri.

Genus 7.—LEODICE.—Savigney.

Generic Character.—Seven jaws, three on the right side and four on the left; five filiform antennæ longer than the head, unequal; head distinct, with two eyes.

Leodice sanguinea.—THE BLOODY LEODICE.

Plate XCIII. fig. 1.

With pectinated branchiæ; most lengthened towards the centre of the body; tail with a double setaceous termination. Inhabits the Indian ocean.

TRIBE III.—NEREIDES.

Branchiæ, when visible, and upper cirri, on all the pairs of papillæ; either with two jaws, or none.

Genus 8.—SPIO.—Lamarck.

Generic Character.—Body elongated, slender, with a row of very short bristles, set in tufts; branchiæ lateral, filiform, and not divided; tentacula two, very long, filiform or setaceous; mouth terminal; eyes two or four.

Spio quadricornis.—THE FOUR-HORNED SPIO.

Plate XCIII. fig. 7.

With four tentacula, the external ones filiform, and the intermediate thick and short. Inhabits the British coasts.

Genus 9.—SYLLIS.—Lamarck.

Generic Character.—Proboscis separated into two segments, the orifice unprovided with tentacula, but in its stead a small protruding horn; no jaws; three antennæ, moniliform: two pairs of tentaculæ and moniliform cirri; the others long; the lower ones inarticulate and conical.

Genus 10.—**PHYLLODOCE.**—*Lamarck.*

Generic Character.—Proboscis claviform and thick, having a row of small tentacula at the orifice ; no jaws ; antennæ short, without an odd one ; cirri consisting of eight pairs, subulate and unequal, or compressed and varied, and not retractile.

Genus 11.—**HESIONE.**—*Lamarck.*

Generic Character.—Proboscis having two segments, thick and subconic ; with a circular orifice and destitute of tentacula ; no jaws ; antennæ equal ; tentacular cirri consisting of eight pairs, which are long, filiform, and retractile.

Genus 12.—**GLYCERA.**—*Lamarck.*

Generic Character.—With an oblong, cylindrical, subclaviform proboscis, without tentacula at the orifice ; no jaws ; middle and exterior antennæ very small, divergent, and double jointed ; no cirri.

Genus 13.—**NEPHTYS.**—*Lamarck.*

Generic Character.—With proboscis narrowed at the base, and consisting of two segments ; the lower one long, club-shaped, and rough at its summit, with small pointed tentacula ; the upper ones very short, longitudinally open, and the orifices of the tentacula in double rows ; jaws small, horny, bent, and pointed ; antennæ small, with two joints and no odd one ; eyes indistinct.

Genus 14.—**LYCORIS.**—*Lamarck.*

Generic Character.—With a thick proboscis divided at the base into two joints, with hard protruding points ; orifice destitute of tentacula ; two horny projecting jaws ; exterior antennæ largest and thickest, and no odd one ; tentacular cirri in place of the first two pairs of pediform papillæ.

TRIBE IV.—**AFHRODITÆ.**

The upper branchiæ and cirri alternating in their position to the twenty-third or twenty-fifth pair of pediform papillæ ; four jaws.

Genus 15.—**POLYNÆ.**—*Lamarck.*

Generic Character.—Tentacula simple, conical, surmounting

the orifice of the proboscis; jaws horny; five antennæ, the odd one sometimes wanting; four eyes; and provided with dorsal scales.

Genus 16.—**HALITHEA.**—*Lamarck.*

Generic Character.—Tentacula divided and somewhat ramose, tufted, and surmounting the orifice of the proboscis; jaws cartilaginous, and hardly visible; odd antennæ subulate, small, the middle ones obsolete, the exterior largest; two eyes; and back with scales.

Halithea aculeata.—**THE SPINED HALITHEA.**

Plate XCIII. fig. 2.

Oblong, with shining spines and hairs; dorsal scales dotted with brown. Inhabits the British coasts.

Genus 17.—**PALMYRA.**—*Lamarck.*

Generic Character.—Proboscis without tentacula at its orifice; jaws semicartilaginous; exterior antennæ larger than the three others; two eyes, but no dorsal scales.

ORDER III.—APODES.

Without feet; branchiæ, when they exist, disposed interiorly along the body. It consists of ten Genera.

TRIBE I.—ECHIUREÆ.

Body with projecting bristles, but not retractile.

Genus 1.—**CIRRATULUS.**—*Lamarck.*

Generic Character.—Body elongated, annulated; each side of the back with a row of very long setaceous cirri, nearly dorsal, and two rows of short spines placed below; two fasciculi of long projecting cirri inserted under the anterior segment; mouth below the anterior extremity, with a rounded operculum; the eyes at the extremities of a crescent-formed line.

Genus 2.—**THALASSEMA.**—*Lamarck.*

Generic Character.—Body soft, elongated, subcylindrical.

annulated, and obtuse behind ; posterior segments spinous ; two hooked gold-coloured spines under the neck ; mouth naked, fleshy, auriform or ear-shaped, contractile ; no eyes.

Genus 3.—LUMBRICUS.—*Linnæus.*

Generic Character.—Body contractile, lengthened, cylindrical, annulated ; rings with small spines directed backwards ; mouth near the extremity, naked, with two lips, the upper one largest and projecting ; no eyes ; anal orifice at the posterior extremity.

TRIBE II.—HIRUDINEÆ.

Body without projecting bristles.

Genus 4.—ERPOBDELLA.—*Lamarck.*

Generic Character.—Body depressed, posteriorly terminated by a prehensile disk ; mouth without teeth or jaws ; with ocular points.

Genus 5.—PHYLLINE.

Generic Character.—Body depressed, short, nearly oval, and gelatinous ; terminated posteriorly by a flattened disk, large and provided with hooks.

Genus 6.—PISCICOLA.—*Blainville.*

Generic Character.—Body cylindrical, elongated, anteriorly attenuated, with dilated extremities ; mouth without teeth ; four eyes.

Genus 7.—PONTOBDELLA.—*Leach.*

Generic Character.—Body elongated, cylindrical, with warts, spinous tubercles, distinct annulations, and the extremities dilated by a prehensile disk ; mouth without teeth or jaws ; no eyes ; vent above, near the posterior disk.

Pontobdella spinulosa.—THE SPINED PONTOBDELLA.

Plate XCIII. fig. 3.

Body with remote spines, and annulated. Inhabits the British seas, adhering to the skate.

Genus 8.—TROCHETIA.—Lamarch.

Generic Character.—Body oblong, anteriorly cylindrical, posteriorly broader, and subdepressed; with a contractile disk; a large circular ring, a third from the anterior end of the body; mouth with two lips, the upper one large and obtuse; without teeth, jaws, or eyes; vent above, near the posterior disk.

Genus 9.—HIRUDO.—Linnæus.

Generic Character.—Body oblong, blunt, somewhat depressed, posteriorly widened, and composed of many contractile segments; a prehensile disk at the posterior extremity; mouth naked, dilatable, with three internal teeth or horny jaws; no eyes; vent above, near the posterior disk.

CLASS VI.—CRUSTACEA.

Animals without vertebral column, having generally a crustaceous covering, more or less solid; with the members of the body articulated, and provided with distinct organs of circulation; respiring by means of branchiæ.—This class consists of nine orders.

ORDER I.—DECAPODA.

With the branchiæ of a pyramidal shape in the form of leaflets, situated near the last four feet-jaws, and of the feet, concealed under the sides of the shell; head not distinct from the trunk of the body. This order contains seventy-six genera.

SECTION I.—BRACHYURA.

The branchiæ consisting of numerous small leaflets, surmounting one another, and placed along a common axis, seven on each side; post-abdomen folded or bent beneath, and generally received into a cavity beneath the pre-abdomen, and not terminated by a fin.

TRIBE I.—QUADRILATERA.

With the thorax nearly square, sometimes heart-shaped, expanding, and rounded at the anterior angles, and truncated at the posterior extremity; front advanced, with a greater or lesser inclination; none of the feet terminated by a fin.

This tribe contains ten genera, namely;—1. Ocypode; 2. Gelasimus; 3. Myctris; 4. Pinnotheres; 5. Gecarcinus; 6. Plagusia; 7. Grapsus; 8. Gonoplax; 9. Thelphusa; 10. Eriphia.

Genus 4.—PINNOTHERES.—*Latreille.*

Generic Character.—With very short antennæ, the three first joints the largest, inserted in the interior corner of the eyes; exterior feet-jaws curved, with the third joint large; forceps equal; shell thin, flexible, orbicular, or nearly square; eyes thick.

Pinnotheres pisum.—THE PEA PINNOTHERES.

Plate XCIII. fig. 4.

Female with an orbicular shell, soft, and nearly square, entire, a little arcuated before; shell of the male contracted in front; hands oblong, with a line of hairs beneath. Inhabits the European coasts, in bivalve shells.

Genus 8.—GONOPLAX.—*Leach.*

Generic Character.—Exterior antennæ setaceous and distinct, the three first joints thicker than the others; exterior feet-jaws approaching, the fourth joint inserted at the interior upper angle of the third, which is pentagonal and transverse; the anterior pair of legs very long; forceps equal and elongated; eyes on the termination of their peduncle.

Gonoplax hispinosa.—THE TWO-SPINED GONOPLAX.

Plate XCIII. fig. 5.

Shell armed with two spines on each side; wrists and arms above with one internal spine. Inhabits the coast of England.

TRIBE II.—ARCUATA.

Shell anteriorly arcuated near the middle of the sides, narrowed, and posteriorly truncated.

This trioe contains the genera, 11. *Pilumnus*; 12. *Cancer*; 13. *Pirimela*; 14. *Atelecyclus*; 15. *Podophthalmus*; 16. *Lupa*; 17. *Portunus*; 18. *Thia*; 19. *Portumnus*.

Genus 11.—PILUMNUS.—Leach.

Generic Character.—With setaceous exterior antennæ, which are long, slender, and inserted in the internal canthus of the eyes; third joint of the exterior feet-jaws nearly square, subtransverse, and notched towards the end; feet of the second, third, fourth, and fifth pairs terminated by simple nails; shell transverse, posteriorly truncated, the anterior margin semicircular; peduncles of the eyes thicker than the eyes.

Pilumnus hirtellus.—THE HAIRY PILUMNUS.

Plate XCIII. fig. 6.

Shell with five teeth on each side; body and legs thickly furnished with bristles; claws muricated on the outside. Inhabits the Devonshire coast.

Genus 12.—CANCER.—Linnaeus.

Generic Character.—With short exterior antennæ inserted between the inner canthus of the eye in front, and the intermediate ones in small furrows in the centre; third joint of the outer feet-jaws nearly square, with a notch at the internal angle of the summit; fore-feet largest, with unequal forceps; shell short, transverse, posteriorly narrowed; the front margin semicircular, frequently dentated on the sides, with obtuse lateral angles; eyes seated in a short peduncle.

Cancer pagurus.—THE COMMON PAGURUS.

Plate XCIII. fig. 8.

With a granulated shell, having nine folds on each side; front trilobate. Inhabits the European seas.

Genus 13.—PIRIMELA.—Leach.

Generic Character.—Exterior antennæ inserted in the internal canthus of the eyes, the intermediate ones in oblique grooves of the hood; exterior feet-jaws, with their third joint square, truncated, and nearly notched at its extremity on the inner side; forceps equal; the other feet with sharp claws; shell subtrans-

verse; the fore margin semicircular; orbits with a slit above and below.

Pirimela denticulata.—THE TOOTHED PIRIMELA.

Plate XCIII. fig. 9.

Shell tubercular, each of the anterior sides provided with five teeth; three teeth in front, the centre ones largest. Inhabits the British coasts.

Genus 17.—PORTUNUS.—*Fabricius*.

Generic Character.—With medium sized exterior antennæ, terminated by a setaceous filament, longer than the peduncle; eyes distant, placed on short peduncles, inserted in lateral furrows under the front; shell broad, depressed, somewhat rounded anteriorly, and serrated; the anterior pair of legs with forceps, the posterior pair terminated by an oval and ciliated plate.

Portunus corrugatus.—THE WRINKLED PORTUNUS.

Plate XCIII. fig. 10.

Wrinkled and granulated transversely, with five teeth before on each side; first and second joints of the claws with a spine on each; forceps serrated; hind legs with an ovate pointed termination. Inhabits the European seas.

Genus 19.—PORTUMNUS.—*Leach*.

Generic Character.—Anterior pair of legs equal, with long forceps, the rest having compressed claws, dilated internally towards the base, the fifth pair with a depressed claw; shell with the transverse and longitudinal diameters the same.

Portumnus variegatus.—THE VARIEGATED PORTUMNUS.

Plate LXXXII. fig. 11.

With obscure granulations, and five teeth on either side, the second and third rather obsolete; three teeth in front, and the wrists with one internal tooth. Inhabits the British seas.

TRIBE III.—ORBICULATA.

With an orbicular or ovoid shell, narrower before than behind, and generally with two furrows; third joint of the exterior feet-jaws triangular.—It contains five genera, namely: 20. Ma-

tula; 21. Orithyia; 22. Corystes; 23. Leucosia; 24. Hepatus.

Genus 22.—CORYSTES.—Latreille.

Generic Character.—Exterior antennæ longer than the body, setaceous, ciliated, placed in two rows; exterior feet-jaws with the third joint longer than the second; eyes seated on peduncles; shell oval, longer than broad; anterior feet large, equal, twice the length of the body in the male, and the same length as the body in the female, with forceps; the other feet terminated by a furrowed claw.

Corystes dentata.—THE TOOTHED CORYSTES.

Plate ~~LXXXII~~^{LXXXIII}, fig. 12.

Granulated and crenated behind; with a bifid front, and the sides with three teeth. Inhabits the coasts of Britain.

TRIBE IV.—CRYPTOPODA.

Posterior angles of the shell dilated and vaulted; with very large, compressed, and crested forceps; shell nearly triangular.—It contains two genera: 25. Clappa; 26. Æthra.

TRIBE V.—TRIGONA.

With a subovoid or triangular shell, having the anterior extremity narrowed and pointed; claws frequently larger in the males than in the females.—It contains ten genera, namely: 27. Parthenope; 28. Eurynome; 29. Pisa; 30. Maia; 31. Stenopus; 32. Hyas; 33. Machus; 34. Macropodia; 35. Leptopodia; 36. Pactus; 37. Lithodes.

Genus 28.—EURYNOME.—Leach.

Generic Character.—With somewhat long external antennæ, the first joint shorter than the second; shell ventricose, anteriorly terminated by a bifid rostrum; eyes distant, thicker than their peduncle; exterior feet-jaws having a nearly square third joint, and notched towards the middle of the internal side; anterior legs equal, those of the male being three times the length of the body; the female with them somewhat longer than the body.

Eurynome aspera.—THE ROUGH EURYNOME.

Plate XCIV. fig. 1.

Back having eight tubercles more prominent than the rest, with hairy margins; and the sides with four lamellæ; anterior legs and thighs with tubercles. Inhabits the British seas.

Genus 32.—HYAS.—*Leach*.

Generic Character.—Shell elongated, subtriangular, and sub-tuberculated, the sides in rear of the eyes produced into a lanceolate projection; rostrum with a fissure, and approximate laciniae; first joint of external antennæ dilated, and larger than the second; anterior feet-jaws with the second joint emarginate at the internal apex.

Hyas araneus.—THE SAND HYAS.

Plate XCIV. fig. 2.

Pointed in front, widening towards the posterior parts, covered with small tubercles; legs very long, the forcep claws thicker and shorter than the others. Inhabits the coasts of Britain.

TRIBE VI.—NOTOPODA.

With the two or four hind feet inserted on the back, or above the line of the others.—There are four genera: 38. *Dromia*; 39. *Homola*; 40. *Dorippe*; 41. *Ranina*.

SECTION II.—MACROURA.

TRIBE I.—HIPPIDES.

With the two anterior feet tapering to their extremity, and acute, sometimes provided with a monodactylous hand, with or without a claw; the six following having a fin-shaped last joint, the last two folded back and short; the last segment of the abdomen elongated, with a foliaceous appendage on either side.—The following genera are of this tribe: 42. *Albunea*; 43. *Hippa*; and,

Genus 44.—REMIPES.—*Latreille*.

Generic Character.—The intermediate and lateral antennæ short, bent, and nearly of equal length; exterior feet-jaws

formed like small arms, having a strong hook at the end; first pair of feet ending with pointed plates; the others with acute ciliated fins.

Remipes testudinarius.—THE TORTOISE REMIPES.

Plate XCIV. fig. 5.

Oblong-ovate; provided with a long tail; having scaly wrinkles, and the whole members finely crenated; five teeth before, of which the intermediate three are shorter than the lateral ones. Inhabits the coasts of New Holland.

TRIBE II.—PAGURII.

The two anterior feet didactylous, the tarsi of the other pairs long and acute; last four pairs smaller than the rest, and terminated by a small forceps, or by a double pointed hook; lateral appendages of the penult segment usually fleshy; shell bent, slightly crustaceous. The following genera are of this tribe: 45. *Birgus*; and,

Genus 46.—*PAGURUS*.—*Latreille*.

Generic Character.—Exterior antennæ remote, long, and setaceous, the upper extremity of the second joint furnished with a moveable spine; the interior ones short and approximate; body oblong, with a slightly crustaceous shell; tail long, nearly naked, rarely divided into segments, and provided at its extremity with lateral appendages; anterior feet unequal, terminated in forceps; the last four pairs very small.

Pagurus Bernhardus.—THE BERNHARDINE PAGURUS.

Plate XCIV. fig. 4.

With muricated and shagreen forceps, the right one longer and larger than the left; second and third pairs of feet spinous at the extremity. A native of the coasts of Britain, inhabiting various species of Bivalve shells, such as turbos, trochi, &c.

TRIBE III.—PALINURINI.

With the post-abdomen terminated by a fan-shaped fin, formed with the last segment, and the lateral appendages of the preceding one. It contains but one genus: 47. *Palinurus*.

TRIBE IV.—SCYLLARIDES.

The peduncles of the lateral antennæ formed like a flattened and horizontal crest. It has two genera: 48. Scyllarus, and 49. Thenus.

TRIBE V.—GALATHINÆ.

All the feet similar in form, but the two anterior which are didactyle. This tribe contains four genera: 50. Ergon; 51. Megalopa; 52. Galathea; and 53. Porcellana.

TRIBE VI.—ASTACINÆ.

Four or six of the feet are didactyle; the exterior leaflet of the lateral appendage of the fin which terminates entire in some, and divided by a suture in others. The following are its genera: 54. Thalassina; 55. Gebia; 56. Arius; 57. Callinassa.

Genus 58.—NEPHROPS.—Leach.

Generic Character.—External antennæ having a produced scale at the apex of the first joint of their peduncle; eyes reniform, greatly thicker than the peduncle; six didactyle legs; anterior claws very long, angular and spinous.

Nephrops Norvegicus.—THE NORWEGIAN NEPHROPS.

Plate XCIII. fig. 3.

Shell with scattered spines in front, the abdomen with hairy areolæ. Inhabits the Northern seas.

Genus 59.—ASTACUS.—Latreille.

Generic Character.—With four unequal antennæ set in a transverse line, the two intermediate shortest, and deeply cleft, the lateral ones simple and longer than the body; the peduncle with scale-like teeth; outer feet-jaws long, the two first joints provided with stiff bristly hairs, and small spines on the internal side; body oblong, subcylindrical; the shell with a protruding beak; tail with a fan-shaped fin, the lateral pieces divided in two; six anterior legs didactyle, first pair very long and thick, with the band more or less tuberculous and spinous.

Astacus fluviatilis.—THE FRESH-WATER ASTACUS, OR
CRAW-FISH.

Plate XCIV. fig. 8.

Shell terminated by a rostrum, with a lateral tooth, and a second one at each side of the base; forceps unequal and finely granulated, with five dentations on the inner side; lateral margins of the abdomen pointed. Inhabits the rivers of Europe.

TRIBE VII.—CARIDES.

With the intermediate antennæ inserted above the lateral ones, protruding and terminated by three filamentary processes. Its genera are, 60. Penæus; 61. Stenopus; 62. Alpheus; 63. Hippolyte; 64. Autonomea; 65, Gnathophyllum; 66. Hymenocera; 67. Nika; 68. Palæmon; 69. Athanus; 70. Atya; 71. Egeon; 72. Crangon; 73. Pandalus; 74. Pasiphæa.

Genus 72.—CRANGON.—*Fabricius*.

Generic Character.—The anterior pair of legs larger than the others, provided with a large monodactyle hand; the second and third pairs more slender, the fourth and fifth thicker; outer antennæ setaceous, and as long as the body; the intermediate divided into two filaments; shell thin, semi-transparent, having a short rostrum in front.

Crangon vulgaris.—THE COMMON CRANGON, OR SHRIMP.

With a single spine placed on the thorax, and another on each side of the rostrum; body green and transparent, spotted with gray. Inhabits the sandy coasts of Europe.

TRIBE VIII.—SCHIZOPODA.

All the feet slender, filiform, fitted for swimming, accompanied with a long lateral appendage, or deeply cleft, sometimes with many clefts at their extremities; but none of them with a hand. Its genera are, 75. Mysis; 76. Nebalia; and 77. Zoea.

Genus 76.—NEBALIA.—*Leach*.

Generic Character.—Thorax with a moveable rostrum in front; anterior pair of legs longest, simple; the rest equal, approximate, the last joint bifid, with many articulations.

Nebalia Herbstii.—HERBST'S NEBALIA.

Plate XCV. fig. 2.

Ash-coloured, with black eyes. One inch long. Inhabits the European seas.

ORDER II.—STOMAPODA.

The head is large, and distinct from the trunk, and consists of two parts; the branchiæ are in the form of plumes or tufts, adhering to the lower appendages of the post-abdomen; intermediate antennæ with a filamentous termination; shell membranaceous; six posterior feet filiform; extremity of the body provided with a foliaceous fin.

TRIBE I.—UNIPELTATA.

With a narrow elongated body; intermediate antennæ and eyes seated on an elongation of the thorax; exterior feet-jaws and four anterior feet terminated in a monodactyle forceps, of which the moveable hook is formed by the tarsus; the other six feet are constructed for swimming, with the last joint brush-shaped; lateral antennæ having a scale at the base, and the intermediate ones terminated by three filamentary processes. This tribe contains three genera: 1. Squilla; 2. Erichthus; 3. Alima.

TRIBE II.—BIPELTATA.

Body depressed, membranous and diaphanous; thorax divided into two shields; the front one very large, ovate, the second supporting the feet-jaws, together with five pairs of feet, which are filiform; intermediate antennæ provided with two filaments. There is but one genus of this tribe: 4. Phyllosoma.

ORDER III.—LÆMODIPODA.

Head and first segment of the trunk not distinctly divided; with four setaceous antennæ, having many articulations; second and third segment provided below with vesicular bodies, supposed to be the organs of respiration.

TRIBE I.—OVALIA.

With an oval body and transverse segments ; feet strong and of medium length ; those of the second and third segments imperfect, with a long, cylindrical obtuse joint at their extremities, and each having an elongated vesicle at their base. It has but one genus: 1. *Cyamus*.

TRIBE II.—FILIFORMIA.

Body long, linear ; segments longitudinal and narrow ; feet long and slender ; last portion of the upper antennæ jointed. This tribe has three genera : viz. 2. *Caprella* ; 3. *Proto* ; 4. *Leptomera*.

ORDER IV.—AMPHIPODA.

Head separated from the segment which supports the second feet-jaws ; the post-abdomen provided with branchial and narrow elongated swimming appendages below, which are striated transversely, and with many articulations, or branchiæ ; mandibles having palpi.

TRIBE I.—GAMMARINÆ.

Posterior extremity with conical, stylet-formed appendages, or without them.—Its genera are, 1. *Cerapus* ; 2. *Leucothoe* ; 3. *Melita* ; 4. *Amphithoe* ; 5. *Dexamine* ; 6. *Gammarus* ; 7. *Pherusa* ; 8. *Orchestia* ; 9. *Talitrus* ; 10. *Atylus* ; 11. *Corophium* ; 12. *Podocerus* ; 13. *Jassa* ; 14. *Phronima*.

TRIBE II.—UROPTERA.

With lateral appendages at the posterior extremity of the body, formed like leaflets, and serving as fins.—Its genera are 15. *Hiperia* ; 16. *Phrosine*.

TRIBE III.—DECEMPEDES.

Provided with ten feet only.—The genera are, 17. *Typhis* ; 18. *Anceus* ; 19. *Praniza*.

TRIBE IV.—HETEROPA.

Having fourteen feet constructed for swimming, or at least the last four.—The genera are, 20. Apseudes ; 21. Ione.

ORDER V.—ISOPODA.

Head distinct ; mandibles without palpi ; three pairs of jaws, the lower one like two small feet, united at their base ; or having a lip with palpi ; body depressed, and divided into from three to seven segments ; from ten to fourteen feet ; tail with seven segments, or upwards ; having branchiæ ; frequently covered with laminæ ; destitute of shell ; with four antennæ, and granulated eyes.

SECTION I.—AQUATICA.

With four antennæ, the anterior with three or four joints ; sometimes destitute of antennæ ; lower appendages of the post-abdomen usually vascular, and without particular openings for the entrance of air.

TRIBE I.—EPICARIDES.

Body considerably depressed above, and concave below, for containing the ova ; without eyes, antennæ, mandibles, and caudal fin.—It has one genus : 1. Bopyrus.

TRIBE II.—CYMOTHOADES.

Four antennæ and eyes, sometimes very indistinct ; mandibles horny ; feet formed for walking, and also prehension ; a fin on each side of the posterior extremity of the body ; post-abdomen consisting of from four to six segments.—Its genera are, 2. Cymothoa ; 3. *Æga* ; 4. *Cirolana* ; 5. *Eurydice* ; 6. *Nelocira* ; 7. *Limnoria* ; and, 8. *Serolis*.

Genus 3.—ÆGA.—Leach.

Generic Character.—The upper antennæ with their two first joints broad and compressed ; large, slightly convex eyes ; tail with foliaceous appendages ; abdominal joints with their sides imbricated.

Æga emarginata.—THE BORDERED ÆGA.

Plate XCIV. fig. 7.

Last abdominal segment laterally dilated, and much pointed; interior lamella obliquely truncated internally, with an exteriorly notched extremity.

TRIBE III.—SPHÆROMIDES.

Post-abdomen consisting of three segments, the last one provided with a fin of two leaflets on either side.—The genera of this tribe are, 9. *Anthura*; 10. *Zuzara*; 11. *Sphæroma*; 12. *Campecopea*; 13. *Næsa*; 14. *Dynamene*; 15. *Cymodocea*.

Genus 9.—ANTHURA.—*Leach*.

Generic Character.—Antennæ short, and not quite equal, the intermediate ones being somewhat longer than the lateral ones; body linear; the anterior feet provided with a moveable claw; tail having lateral foliaceous laminae.

Anthura gracilis.—THE SLENDER ANTHURA.

Plate XCIV. fig. 9.

Antennæ short, somewhat equal, the intermediate a little longer than the lateral ones; body linear; anterior feet with moveable claws; tail foliaceous and obliquely truncated.

TRIBE IV.—ASELLOTA.

Last segment of the abdomen without swimming appendages.—The following are its genera: 16. *Asellus*; 17. *Janira*; 18. *Jæra*.

TRIBE V.—IDOTEIDES.

Post-abdomen provided with branchial appendages beneath, and covered by longitudinal doubly articulated plates; having four antennæ placed in a transverse line, the lateral ones with a setaceous filamentous termination; post-abdomen consisting of three distinct segments.—It has two genera: 19. *Idotea*; and, 20. *Stenosoma*.

Genus 19.—IDOTEA.—*Fabricius*.

Generic Character.—Body either oblong or elongated, consisting of seven transverse segments; with setaceous lateral an-

tennæ, which are the longest ; head nearly as broad as the body, almost square ; eyes two, round and compound ; tail very large, with three articulations, and destitute of terminal appendages covering the branchiæ and their protecting laminæ ; having fourteen feet.

Idotea entomon.—THE ENTOMON IDOTEA.

Plate XCV. fig. 1.

Drab-coloured above, whitish-gray below ; antennæ nearly of equal length. One inch and a half long. Inhabits the Northern coasts.

SECTION II.—TERRESTRIA.

With two very small, hardly visible, intermediate antennæ, and having no more than two joints ; post-abdomen consisting of six segments, the posterior margin of the last one with two bifid styles in some, and four in others.

TRIBE VI.—ONISCIDES.

This tribe consists of five genera ; namely, 21. *Ligia* ; 22. *Philoscia* ; 23. *Oniscus* ; 24. *Porcellio* ; and, 25. *Armadillo*.

Genus 23.—ONISCUS.—*Linnaeus*.

Generic Character.—With four antennæ placed below the anterior margin of the head, the two anterior ones setaceous, and the only ones which are apparent, the intermediate ones being indistinct ; eyes sessile ; body oval, and having imbricated crustaceous segments ; extremity of the tail with two protruding appendages.

Oniscus asellus.—THE ASS ONISCUS.

Plate XCV. fig. 4.

Body somewhat rugose above, most so on the head ; dusky-gray, paler on the margin ; each side of the body with a longitudinal row of yellow spots. Inhabits the coasts of Europe.

Genus 25.—ARMADILLO.—*Latreille*.

Generic Character.—Anterior antennæ seven-jointed, geniculate, inserted on each side of a notch on the hood ; eyes lateral,

granular ; body arcuated and gibbous ; tail having six segments, the last one triangular and short ; and with seven pairs of feet.

Armadillo vulgaris.—THE COMMON ARMADILLO.

Plate XCIV. fig. 6.

Ash-coloured, with the margin of the segments paler. Inhabits Europe, under stones.

ORDER VI.—LAPHYROPODA.

Head not distinct from the trunk ; eyes compound and sessile ; shell of one or two pieces, and varying in size ; jaws unprovided with branchiæ, and the mandibles without palpi ; feet variable in number, simple, branched, or formed of hairy laminæ, fitted for swimming ; these are considered the organs of respiration.

TRIBE I.—UNIVALVIA.

Shell consisting of one piece, and leaving the greater part of the body uncovered.—The genera are, 1. Cyclops.

TRIBE II.—OSTRACODA.

Shell either folded in two, or united in the form of a bivalve shell by a hinge, and inclosing the body.—Its genera are, 2. Polyphemus ; 3. Daphnia ; 4. Lynceus ; 5. Cypris ; 6. Cytherina.

ORDER VII.—PHYLLOPODA.

Head not distinct from the trunk ; eyes approximate, smooth, and sessile ; antennæ very short ; a crustaceous shield, free posteriorly ; having two corneous mandibles without palpi ; feet of the first pair oar-shaped, the others fitted for swimming, and consisting of sixty pairs.

TRIBE I.—ASPIDIOPHORA.

Eyes not placed on peduncles.—It has two genera : 1. Limnadia ; 2. Apus.

TRIBE II.—CERATOPHTHALMA.

With a shell, and the eyes seated on peduncles.—Its genera are, 3. *Branchipus* ; and, 4. *Artemia*.

ORDER VIII.—XYPHOSURA.

Body subdivided, without a syphon ; base of the feet, except the last two, spiny, and acting as jaws ; shell covering the whole body, hard, in two compartments, longitudinally furrowed above ; body terminated by a hard sabre-shaped process.

It has but one genus ; 1. *Limulus*.

ORDER IX.—SIPHONOSTOMA.

With a syphon or proboscis, but is sometimes invisible, and provided with palpi for suction ; with more than six or seven pairs of feet ; shell of one piece, soft, membranous, and not entirely covering the body.

TRIBE I.—CALIGIDES.

Shell distinct, with the body more or less oval.—It consists of four genera : 1. *Argulus* ; 2. *Caligus* ; 3. *Anthosoma* ; 4. *Cecrops*.

TRIBE II.—LERNÆIFORMES.

Destitute of a shell ; body nearly cylindrical, jointed, and having the appearance of a worm.—It consists but of one genus ; 1. *Dichelesthium*.

CLASS VII.—ARACHNIDES.

The animals are oviparous and have articulated members, and do not undergo any metamorphosis ; they respire by a tracheæ, or by means of branchiæ ; the apertures for the admission of air is stigmatiform, and having no antennæ.

This class constituted Linnæus's last order of his insects, but Lamarck formed a distinct class for them. They possess functions different from both crustaceous animals and insects ; from the former, in having always internal respiratory organs, and from the latter, in not undergoing any transformation. The head is not distinct from the trunk of the body ; and they have from two to eight simple eyes ; the usual number of feet are eight, although some few have six only. The body of all this class is soft, except one tribe.

Lamarck has divided this class into three orders, but Latreille only separates them into two, as follow:—I. PULMONARIÆ, II. TRACHEARIÆ.

ORDER I.—PULMONARIÆ.

Provided with a heart, or organ of circulation ; branchial sacs placed on each side of the abdomen below ; the sexual organs are double ; with from six to eight smooth eyes ; they are furnished with two pedipalpi, with one or two toes at their termination, one of which is always moveable ; two jaws, and palpi, and four pairs of feet.

SECTION I.—PEDIPALPI.

With very large palpi ; abdomen annulated ; and devoid of web-spinning papillæ ; sexual organs situated at the base of the abdomen.

TRIBE I.—SCORPIONIDES.

Abdomen sessile, with four spiracles below on each side, and the last six segments forming a knotty tail, the last one ending in a point, acting as a sting, and perforated for the secretion of poison ; palpi in the form of forceps. There is but one genus of this tribe.

Genus 1.—SCORPIO.—*Linnæus*.

Generic Character.—Two large palpi, in the form of arms, the last joint thickest, and terminated by forceps ; mandibles short, thin, and didactyle ; jaws short and rounded ; eyes six or eight ; body oblong, divided into segments, with a long knotted

tail, terminating in an arcuated sting; two pectinated and moveable plates under the belly, at the lower part of the abdomen; each side with four spiracles; eight eyes and feet, except in one species, which has but six eyes.

Scorpio Europæus.—THE EUROPEAN SCORPION.

Plate XCVI. fig. 1.

Having six eyes; body dusky-brown; pecten provided with nine teeth, and the wrists with one; forceps subcordate; legs and last joint of the tail brownish-yellow. Inhabits Southern Europe.

TRIBE II.—TARANTULÆ.

With a pedunculated abdomen, and two spiracles below on each side, having a filamentary termination and stingless; palpi arm-shaped, with spinous extremities; mandibles monodactyle; anterior feet longest, and terminated by a setaceous tarsus; tongue long, linear, and arrow-shaped. There are two genera in this tribe:—2. *Thelyphonus*; 3. *Phrynus*.

Genus 2.—THELYPHONUS.—*Latreille*.

Generic Character.—Two arm-formed palpi, shorter than the feet, and terminated with forceps; mandibles covered with scales; eight eyes; body oblong; thorax ovate; abdomen consisting of a series of annulations, with a jointed seta at the posterior termination; eight feet.

Thelyphonus proscorpio.—THE TARANTULA.

Plate XCVI. fig. 2.

Yellowish-brown; back of the abdomen with a series of trigonal black spots, with whitish edges, legs marked beneath with white and black bars. Inhabits Southern Europe.

SECTION II.—ARANEIDES.

Palpi formed like small feet, and terminated by a minute hook; the sexual organs of the male situated in the last joint; both sexes provided with four or six web-spinning mamillæ near the vent.

SUB-DIVISION I.—TETRAPNEUMONES.

Provided with two spiracles and two pulmonary sacs on each side.—Contains five genera :—4. *Mygale*; 5. *Atypus*; 6. *Oriodon*; 7. *Filistata*; 8. *Dysdera*.

Genus 4.—MYGALE.—*Latreille*.

Generic Character.—With protruding, elongated, pediform palpi, inserted at the point of the jaws; hooks of the mandibles bent downwards; jaws elongated; with a small quadrate lip; eight eyes.

Mygale avicularia.—THE BIRD-CATCHING MYGALE.

Plate XCVI. fig. 3.

Deep dusky-brown, covered with long hairs; palpi and legs tipped with rust-colour; tarsi broad. Ten inches from the stretch of its legs. Inhabits South America.

SUB-DIVISION II.—DIPNEUMONES.

One spiracle, and one pulmonary sac only, on each side of the abdomen; six spinning orifices, the four outer ones somewhat square, and two smaller ones in the middle.

TRIBE I.—TUBITELÆ.

With cylindrical approximate spinning orifices, in a fasciculus, directed backwards; feet strong, the first and last two the largest, or *vice versa*.—Its genera are, 9. *Clotho*; 10. *Drassus*; 11. *Segestria*; 12. *Clubiona*; 13. *Aranea*; and

Genus 14.—ARGYRONETA.—*Latreille*.

Generic Character.—With straight, elongate, quadrate maxillæ, rounded at the apex; lip an elongated triangle, shorter than the maxillæ; the second pair of feet shortest; eyes with the four central ones forming a quadrangle, the side ones placed obliquely.

Argyroneta aquatica.—THE AQUATIC ARGYRONETA.

Plate XCVI. fig. 4.

Deep dusky-brown; abdomen black, pilous, with impressed dots on its back. Inhabits slow running streams of Europe.

TRIBE II.—INÆQUITELÆ.

With exterior, conical, converging, spinning papillæ; the first and last pairs usually the longest; jaws with an inclination upon the labium.—It contains the following genera:—15. Theridion; 16. Scytodes; 17. Episinus; and 18. Pholcus.

Genus 16.—SCYTODES.—Latreille.

Generic Character.—With longitudinal oblique maxillæ covering the sides of the lip; having their bases thickened, and apex obliquely truncated internally; lip a little quadrate, with its base slightly contracted; fourth and fifth pairs of feet longest, the third pair being shortest.

Scytodes thoracica.—THE THORACIC SCYTODES.

Plate XCVI. fig. 5.

Skin coloured, spotted with black; with a large orbicular thorax, produced and rounded behind; abdomen nearly white and subglobose. Inhabits houses at Paris.

TRIBE III.—ORBITELÆ.

In general form resembling the last tribe; but the first pair of feet, and afterwards the second, are usually longest; jaws straight and widening towards their upper extremity. The genera are, 19. Linyphia; 20. Uloborus; 21. Tetragnatha; and

Genus 22.—EPEIRA.—Latreille.

Generic Character.—With the four central eyes placed triangularly, the two anterior ones largest; maxillæ somewhat circular, and internally membranaceous; lip semicircular, short, with a membranaceous point; feet hairy, the first pair longest, next the second, then the fourth; abdomen subglobose; large, and greatly broader than the thorax.

Epeira diadema.—THE CROWN EPEIRA.

Plate XCVI. fig. 6.

Abdomen nearly ovate and globose, with an elevated ridge on each side of its base; of a reddish chestnut-brown colour, and spotted with yellowish-white. Inhabits Europe, in woods and gardens.

TRIBE IV.—LATHERIGRADÆ.

The four anterior feet longest, and nearly equal, horizontally extended in repose; eyes forming the segment of a circle.—The genera are, 23. *Thomisus*; 24. *Micrommata*; and 25. *Sene-lops*.

TRIBE V.—CITIGRADÆ.

Eyes placed in a curvilinear triangle, or in a truncated oval.—Its genera are, 26. *Oxyopes*; 27. *Ctenus*; 28. *Lycosa*; and 29. *Dolomedes*.

Genus 28.—LYCOSA.—*Latreille*.

Generic Character.—With straight, anteriorly convex, and externally subarcuated maxillæ, with an obliquely truncated apex, forming almost an inverted triangle; lip elongated and quadrate; feet strong, the fourth pair being longest, next the second, the third the shortest; eyes quadrilateral.

Lycosa tarantula.—THE TARANTULA LYCOSA.

Plate XCVI. fig. 7.

Brown; back of the abdomen with a row of trigonal black spots, white on the edges; legs having black and white bars. Inhabits Southern Europe.

TRIBE VI. SALTIGRADA.

Legs formed for leaping; eyes placed in a quadrangular group, either single or double, the smaller ones placed within the others.—Its genera are, 30. *Eresus*; and

Genus 31.—SALTICUS.—*Latreille*.

Generic Character.—With straight, longitudinal, subrhomboidal maxillæ; an elongated, suboval lip, with an obtuse apex; eyes set in the form of a horse-shoe, the two central ones largest; legs thick and short, the first pair thickest, and the fourth longest.

Saliticus scenicus.—THE SCENIC SALTICUS.

Plate XCVI. fig. 8.

Black; margins of the chest covered with white down. Inhabits old walls of Europe.

ORDER II.—TRACHEARIÆ.

Instead of a heart provided with a single dorsal vessel, they perspire by radiated tracheæ, and receive the air by spiracles placed in the abdomen or thorax; sexual organs single; eyes usually two, but never exceeding four, and some species are devoid of them; most species have a syphon-shaped mouth.

TRIBE I.—PYCNOGONIDES.

With a projecting tubular syphon; four eyes placed on one tubercle; feet frequently very long, and provided with unequal hooks; two oviferous feet at the base of the first.—The genera are, 1. Nymphon; 2. Ammothea; 3. Phoxichilus; 4. Pycnogonon.

Genus 3.—PHOXICHILUS.—Latreille.

Generic Character.—With extremely slender legs; the middle joint of the thigh longest, and subclavate; first joint of the tarsi very small; claws double, unequal, the longer one sharp; the ova-bearing legs, with seven joints, the last one somewhat tuberculous, and inserted at the base of the rostrum, one on each side, and attached to the first segment of the body.

Phoxichilus hirsutus.—THE HAIRY PHOXICHILUS.

Plate XCVI. fig. 9.

The articulations of all the joints of the limbs provided with hairs.

TRIBE II.—PSEUDOSCORPIONES.

With very large pediform palpi, either terminating in didactyle forceps, or in a vascular button without any hook.—The genera are, 5. Obisium; 6. Chelifer; and 7. Galeodes.

Genus 5.—OBISIUM.—Illiger.

Generic Character.—With a cylindrical body, and the thorax consisting of one segment; mandibles porrect; and four eyes.

Obisium Trombidoides.—THE TROMBIDOIDAL OBISIUM.

Plate XCVI. fig. 10.

The second joint of the arms considerably elongated; fingers

long and straight ; dark brown, and covered with ciliated hairs. Inhabits England and France, under stones.

TRIBE III.—PHALANGITA.

With slender filiform palpi, terminating in a small hook.—It contains the following genera :—8. Phalangium ; 9. Trogulus ; and 10. Siro.

Genus 8.—PHALANGIUM.—*Linnaeus.*

Generic Character.—The head and abdomen united under a common skin ; the abdominal folds having the appearance of annulations ; with articulated, geniculated, and protruding mandibles, ending in forceps ; pedipalpi filiform, consisting of five joints, the last ending in a small hook ; eight feet ; labium external, with a hole in each side ; two eyes supported on a common tubercle ; body ovoid or rounded.

Phalangium cornutum.—THE HORNED PHALANGIUM.

Plate XCVI. fig. 11.

Reddish ash-coloured above ; the mandibles and antennæ whitish. Inhabits Europe, in walls, &c.

TRIBE IV.—ACARIDES.

Body ovate or globular ; palpi filiform and protruding ; eyes small, feet eight and hairy, terminated by from two to three hooks.—The genera are, 11. Trombidium ; 12. Erythræus ; 13. Gamasus ; 14. Cheyletus ; 15. Uropoda ; 16. Acarus ; 17. Oribata ; and 18. Eylais.

Genus 16.—ACARUS.—*Fabricius.*

Generic Character.—With a very soft body, furnished with a naked mouth ; palpi short or concealed ; tarsi terminated by a vascular ball.

Acarus domesticus.—THE CHEESE MITE.

Plate XCVII. fig. 1.

Body ovate, yellowish-white, beset with long remote hairs. Inhabits cheese and old flour, in England.

TRIBE V.—HYDRACHNELLÆ.

Feet adapted for swimming. — The genera are, 19. *Hydrachna*; and 20. *Limnochares*.

Genus 19.—HYDRACHNA.—*Muller*.

Generic Character.—With subcylindrical porrect, inflexed four-jointed palpi, the last joint acute; mouth protruded into a conical rostrum; body globose; legs fringed with hairs, and at equal distances.

Hydrachna geographica.—THE GEOGRAPHICAL HYDRACHNA.

Plate XCVII. fig. 2.

Body globular, black, with scarlet spots and dots. Inhabits slow-running streams of Europe.

TRIBE VI.—RICINIÆ.

Feet not constructed for swimming; animals somewhat amphibious, wandering or parasitical. — The genera are, 21. *Bdella*; 22. *Smaridia*; 23. *Ixodes*; and 24. *Argas*.

TRIBE VII.—MICROPHTHIRA.

Having always six feet, and parasitical. — The genera are, 25. *Caris*; 26. *Leptus*; and 27. *Astoma*.

CLASS VIII.—MYRIAPODA.

Head distinct, and provided with two antennæ; body divided into segments; mandibles simple, incisive, most of which are provided with feet.

The general structure of this class allies them with the Crustacea and Arachnides, but their respiratory organs connect them more closely with insects. The air is received into their bodies by numerous lateral spiracles; they have, extending the whole length of their bodies, two tracheæ, the one parallel to the other. They have single sexual organs; and an indefinite number of feet; and never fewer than six; these are either arranged in double or single pairs, on each segment of the body, and in-

crease with the natural elongation of the animal from age.—Lamarek divides this class into two orders.—I. CHILOGNATHA ; and II. CHILOPODA.

ORDER I.—CHILOGNATHIA.

Antennæ seven-jointed and filiform ; mouth composed of two mandibles and a lip divided by sutures ; with two or four anterior feet united at their base, resembling pedipalpi ; and having distinct spiracles. This order contains five genera.

TRIBE I.—ANGUIFORMIA.

With the body generally linear, covered with a solid skin ; and destitute of anal appendages ; antennæ thickest towards the termination ; with at least thirty-two feet.—This tribe contains four genera.—1. Glomeris ; 2. Julius ; 3. Polydesmus ; 4. Craspedosoma.

Genus 2.—JULIUS.—Linnaeus.

Generic Character.—Body serpent-shaped and cylindrical ; the second joint of the antennæ longer than the third ; legs numerous.

Julus subulosus.—THE GALLY WORM.

Plate XCVII. fig. 3.

Blackish-brown, with two rufous dorsal lines ; last joint mucronate. One inch and a half long. Inhabits Europe, under stones.

TRIBE II.—PENICILLATA.

With an oblong membranaceous very soft body, with ridges on the sides formed by scales, and a pencil of ciliated hairs at its posterior end ; with filiform antennæ, and twenty-four feet.—It has one genus.

Genus 5.—POLYXENUS.—Lamarck.

Generic Character.—With short filiform, and moniliform antennæ, inserted under the anterior margin of the head ; devoid of palpi ; body soft, elongated, and depressed, with scales on

the sides, disposed in fasciculi, and a pencil of ciliated scales at the hinder end; twelve pairs of feet.

Polyxenus electricus.—THE ELECTRIC POLYXENUS.

Plate XCVII. fig. 4.

Dusky-brown, with yellowish legs, of which there are about seventy on each side. Inhabits damp situations in Europe.

ORDER II.—CHILOPODA.

Antennæ setaceous, many-jointed; mouth consisting of two mandibles and a small palpiform appendage; labium with many clefts, and two large palpi; two hook-formed feet, pierced at the tips for the emission of a poisonous fluid; body with a coriaceous or membranous covering; and each segment with two feet; having distinct spiracles.

TRIBE I.—INÆQUIPEDES.

With an elongated body, but not worm-shaped or linear, divided below into fifteen segments, each provided with a pair of feet, and are covered above with eight plates or scutelliform segments, which conceal the spiracles; feet elongated, the last pair exceeding the others, with a long jointed tarsus; eyes large and compressed.—It has but one genus; 1. *Scutigera*.

TRIBE II.—ÆQUIPEDES.

Body linear, worm-shaped, with the segments above and below equal; feet equal, except the last two, which are long and cuculliform; eyes granulated; the spiracles lateral. It contains five genera: 2. *Lithobius*; 3. *Scolopendra*; 4. *Cryptops*; 5. *Geophilus*.

Genus 3.—SCOLOPENDRA.—*Linnaeus*.

Generic Character.—The antennæ conico-setaceous, and consisting of seventeen subconic articulations; mouth surmounted by hemispheric galeæ; exterior palpi with a double peduncle; mandibles strong, horny; upper lip slit; segments of the body margined; anterior pair of feet small, the last pair being the

largest ; with eight eyes, having four on each side of the head ; arranged rhomboidally.

Scolopendra morsitans.—THE DEADLY SCOLOPENDRA.

Plate XCVII. fig. 5.

Body brown ; provided with forty-two feet, the last two with a spinous first joint. Inhabits India.

CLASS IX.—INSECTS.

Articulated animals with six legs, and respiring by means of tracheæ ; head distinct from the thorax, and provided with two antennæ.

The animals composing this very extensive class have articulated feet, a dorsal vessel, supposed by some naturalists to be the heart, but devoid of any branches for circulation ; they respire by means of two tracheæ, which lie parallel to each other, and extend through the whole inner cavity of the body. These have bronchi at intervals, from which emanate a number of branches, and correspond to the external stigmata, for the entrance of air.

They have all a distinct head, furnished with two antennæ. The nervous system of the greater number of insects, usually consists of a brain, formed of two opposite ganglia, whose bases are united, furnishing but eight pairs of nerves, two solitary nerves, and twelve ganglia. To which, however, several lamellicornaceous coleopterous insects, in a perfect state, form an exception. The nervous system and digestive organs, however, undergo remarkable changes, in different stages of their existence.

Cuvier and Scarpa are of opinion, that the seat of hearing in insects is near the origin of the antennæ. The former says, " in some lepidopterous insects I have observed two small holes situated near the eyes, and which, perhaps, are auditory conduits."

In the head are situated the antennæ, the eyes, and the mouth.

The eyes are either complicated or smooth ; they are formed

of a cornea, which is divided into a multitude of small facets; others have simple eyes, the cornea consisting of a single piece.

The mouth of insects with six feet, is generally composed of six pieces, four of which are lateral, and disposed in pairs; the other two are opposed to each other, and placed in a contrary direction.

In sucking insects, or those which subsist on fluid aliment, there are two modifications of form in the lips. In one of these, they consist of small laminæ, formed like lancets; and by their union, become a kind of sucker, which is received into a cylindrical or conical sheath, articulated in the form of a beak.

The trunk or thorax, is the part of the body next the head, and to which the feet are attached. It is composed of three segments, varying in their relative position. The hind part of the body, which is posterior to the thorax, is termed the abdomen. This part contains the viscera, and the sexual organs, and consists generally of nine or ten segments, some of which, however, are frequently concealed, or greatly shortened.

The greater number of insects undergo several metamorphoses: first the egg, which bursting, presents the caterpillar; and after it has lived its allotted time, becomes an aurelia, or chrysalis; and then undergoes its final change into the perfect insect. A few, however, are not subject to a complete metamorphosis.

The limits of this little work will not permit a complete developement of this numerous class, and we therefore propose giving an outline only of the eleven orders and principal tribes, and an illustration of the most striking genera of Latreille, whose arrangement we follow.

ORDER I.—THYSANOURA.

Apterous insects with six feet, and not undergoing any transformation; head distinct; two antennæ, which are longer than the head; abdomen terminated by filaments on a forked tail.

TRIBE I.—LEPISMENÆ.

The antennæ divided from their base into a number of small

joints; palpi protruding; abdomen having on each side a series of moveable appendages, and long, setaceous, articulated filaments.—It has two genera: 1. *Machilis*; and,

Genus 2.—*LEPISMA*.—*Linnaeus*.

Generic Character.—With very small, widely separated, and granulated eyes; body depressed, with three equal setæ at its termination, inserted in the same line; feet not constructed for leaping.

Lepisma saccharinu.—THE SACCHARINE LEPISMA, OR WOOD FISH.

Plate XCVII. fig. 6.

Silvery-gray; body gradually tapering to the tail, which terminates in three long serrated bristles. Inhabits Europe and Jamaica, and destroys books.

TRIBE II.—PODURELLÆ.

Antennæ four-jointed; mouth without distinct palpi; abdomen divested of lateral appendages, and terminated by a forked tail; not constructed for leaping.—Its genera are, 3. *Podura*; and,

Genus 4.—*SMYNTHURUS*.—*Latreille*.

Generic Character.—Antennæ more slender at their extremity than below, and terminating in an annulated portion; body globular or oval.

Smynthurus atra.—THE BLACK SMYNTHURUS.

Plate XCVII. fig. 7.

Short, sub-globular, with elongated antennæ; glossy black. Inhabits the bark of trees in Britain.

ORDER II.—PARASITA.

Destitute of wings, and provided with six feet; abdomen without articulated and moveable appendages; having two or four small eyes; the mouth of many species placed interiorly, with an external proboscis or nipple, acting as a sheath to a re-

tractile sucker ; or having two membranous lips, provided with two hooked mandibles.

TRIBE I.—MANDIBULATA.

Provided with mandibles, two lips, and jaws.

Genus 1.—RICINUS.—*Latreille.*

Generic Character.—Mouth placed below, externally composed of two lips, and two hooked mandibles ; tarsi jointed, and terminated by two equal hooks ; antennæ thickest at their points.

Ricinus corvicoracis.—THE CROW LOUSE.

Plate XCVII. fig. 8.

Back with oblique brown bands along its margins. Infests the crow.

TRIBE II.—SIPHUNCULATA.

Without mandibles ; the mouth consisting of a rostrum, from which the animal can protrude a sucker at pleasure.

Genus 2.—PEDICULUS.—*Linnæus.*

Generic Character.—With an apterous body, and distinct head ; six feet articulated on the thorax ; two antennæ ; two eyes, having distinct facets ; mouth consisting of a rostrum, enveloping an extensile sucker ; destitute of mandibles or jaws.

Pediculus coturnicis.—THE QUAIL LOUSE.

Plate XCVII. fig. 9.

White ; every segment furnished with three hairs on each side ; legs hairy. Infests the quail.

ORDER III.—SYPHONAPTERA.

Body compressed ; mouth provided with a sucker of two pieces, inclosed between articulated laminae, forming a cylindrical or conical rostrum by their union, the base of which is covered with scales. This order consists of but one genus.

Genus PULEX.—*Linnaeus*.

Generic Character.—With an oval compressed body divided into twelve segments, the thorax embracing three of them, and the others the abdomen; feet six; without wings; rostrum jointed and consisting of two plates, enveloping a sucker.

Pulex irritans.—THE COMMON FLEA.

Plate XCVII. fig. 10.

Deep chestnut-brown, the legs paler; the segments bordered with short stiff hairs.

ORDER IV.—COLEOPTERA.

Having four wings, the upper ones in the form of cases; provided with mandibles and jaws for mastication; under wings folded across; elytra crustaceous, with a straight suture.

SECTION I.—PENTAMERA.—Tarsi having all five joints.

TRIBE I.—ADEPHAGI.

Having six palpi, provided with two at each jaw.

Genus CICINDELA.—*Linnaeus*.

Generic Character.—With an oblong or ovate, posteriorly rounded abdomen; with two palpi on each jaw; exterior palpi as long, sometimes longer than those of the labium; filiform antennæ; hairy palpi; wings and tarsi slender and elongated.

Cicindela hybrida.—THE HYBRID CICINDELA.

Plate XCVII. fig. 11.

Body shining, verdigris-green; and spotted with white on each wing case; suture of a coppery tinge. Inhabits wood in Europe.

Genus CARABUS.—*Latreille*.

Generic Character.—With an elongated body, which is frequently bronzed, golden-green, coppery, and violet; head projecting, and narrower than the thorax; eyes two, rounded; thorax narrower than the abdomen, heart-shaped, truncated and

generally posteriorly notched and margined; scutellum small, the abdomen large and oval; antennæ filiform; mandibles strong, crossed; elytra margined, frequently striated, furrowed or with elevated points; labium two lobed, and the chin one toothed; anterior tarsi of the males dilated, the first four joints spongy below.

Carabus morbillosus.—THE MORBILLOUS CARABUS.

Plate XCVII. fig. 12.

Copper-green above, and black beneath; abdomen oblong-oval. Inhabits Europe, under stones in moist places.

Genus DYTISCUS.—*Latreille*.

Generic Character.—Body oval; six palpi; antennæ provided with eleven joints; tarsi with five joints, the three first of the two anterior tarsi forming an oval palette.

Dytiscus marginatus.—THE MARGINATED DYTISCUS.

Plate XCVII. fig. 13.

Elytra with a yellow border and not dilated; thorax with a yellow margin; body blackish-green above, and fawn-coloured below. Inhabits Europe.

Genus GYRINUS.—*Linnaeus*.

Generic Character.—With fusiform, clavate antennæ shorter than the head; the four posterior feet broad and compressed.

Gyrinus natator.—THE SWIMMING GYRINUS.

Plate XCVII. fig. 14.

Iridescent blackish-bronze; feet rust-coloured, the four posterior ones short and compressed; the anterior feet elongated; antennæ black. Inhabits Europe.

TRIBE II.—BRACHYPTERA.

With a narrow elongated body, raised upwards at its posterior extremity when in motion; antennæ moniliform; each jaw provided with a palpus; elytra shorter than the abdomen but covering the wings; anal orifice with cylindrical, conical and hairy appendages; coxae of the two anterior feet generally large.

Genus STAPHYLINUS.—Fabricius.

Generic Character.—The whole palpi filiform, with the antennæ inserted between the eyes; the anterior tarsi dilated in both sexes, or in the males.

Staphylinus maxillosus.—THE MAXILLARY STAPHYLINUS.

Plate XCVII. fig. 15.

Black, iridescent; head considerably broader than the thorax; elytra gray, with black spots and points. Inhabits Europe, found in old dung-hills.

TRIBE III.—SERRICORNES.

With filiform or setaceous antennæ, those of the males usually tufted, pectinated, or serrated, in some terminated in a perfoliated or dentated club; elytra covering all the upper part of the abdomen, excepting in one genus; penult joint of the tarsi frequently bilobed.

Genus BUPRESTIS.—Linnæus.

Generic Character.—The males provided with serrated antennæ; palpi filiform, or slightly thickened at their extremity; the first four joints of the tarsi short, broad, depressed, and triangular, seated on a spongy cushion; body ovate, convex, or triangular.

Buprestis viridis.—THE GREEN BUPRESTIS.

Plate XCVII. fig. 16. 1

Body bright bronze-green; elytra entire and dotted. Inhabits Europe, in the bark of trees.

Genus LAMPYRIS.—Linnæus.

Generic Character.—With an oval depressed body; a square semicircular thorax, concealing the head; mouth very small; the last joint of the maxillary palpi acute; eyes very large; antennæ filiform, pectinated and approximated at their base, in many of the males they are plumose or serrated; posterior extremity of the abdomen phosphorescent, shining in the dark; elytra coriaceous.

Lampyris noctiluca.—THE GLOW-WORM.

Plate XCVIII. fig. 17.

The male four lines long, of a dusky brown colour; the antennæ simple; thorax semicircular, surmounting the head, and having two semilunar spots; abdomen black; last segment pale yellow. Inhabits Europe.

Genus ANOBIUM.—*Fabricius*.

Generic Character.—Antennæ simple, consisting of eleven joints, terminated by three larger ones, the last one oval, the two others in the form of a reversed cone.

Anobium tessellatum.—THE DEATH-WATCH PTINUS.

Plate XCVII. fig. 17.

Of an obscure grayish brown colour; elytra marked with numerous irregular variations, of a light shade. About a quarter of an inch long. Inhabits decayed wood in houses of Europe.

TRIBE IV.—CLAVICORNES.

Having four palpi, and the elytra covering nearly the whole abdomen above; antennæ generally consisting of eleven joints, thickening insensibly towards their extremity, or terminating in knobs of various shapes, and invariably longer than the maxillary palpi; tarsi with five joints.

Genus HOLOLEPTA.—*Paykull*.

Generic Character.—Body greatly depressed; chin deeply notched; exterior lobe of the jaws and the palpi elongated, and the joints of the palpi cylindrical; the pre-sternum not covering the mouth.

Hololepta unicolor.—THE ONE-COLOURED HOLOLEPTA.

Plate XCVIII. fig. 16.

Of a deep glossy coal-black. Inhabits gardens and sandy fields, in Britain.

TRIBE V.—PALPICORNES.

The antennæ are short, and composed of six or nine joints inserted in a deep groove, under the lateral border of the head,

and terminated in a perfoliated or solid club; with an oval or hemispherical body; the mentum large, and the maxillary palpi long.

Genus SPERCHEUS.—Fabricius.

Generic Character.—Antennæ consisting of six joints; destitute of spines on the legs; exterior division of the jaws palpi-form, arched acute, and downy at the extremity; body hemispherical.

Spercheus emarginatus.—THE EMARGINATED SPERCHEUS.

Plate XCVIII. fig. 6.

Head and throat black; back dark brown, elytra dull red. Inhabits Europe, at the roots of water plant.

TRIBE VI.—LAMELLICORNES.

With from eight to eleven joints in the antennæ, but only eight or ten in the greater number, inserted in a deep groove, always short, with a claviform termination, composed of plicated or pectinated laminae, or like the leaves of a book; external side of the two anterior legs dentated; chin frequently large, covering the labium.

Genus ORYCTES.—Illiger.

Generic Character.—With the labium concealed by the chin, the elytra not gaping; antennæ ten-jointed, the last three forming the club; mandibles projecting; jaws coriaceous at their points, hairy, and destitute of teeth; males with an arcuated horn on the head, and the thorax truncated or hollowed before.

Oryctes nasicornis.—THE NOSE-HORNED ORYCTES.

Plate XCVIII. fig. 3.

Chestnut-brown above, pale chestnut below; male with a simple elevated recurved horn on its nose. Inhabits Europe, in gardens, &c.

Genus SCARABÆUS.—Latreille.

Generic Character.—With an oblong-ovate, convex body; the head narrowed in front, and armed with horns or tubercles

in the males ; with a distinct scutellum ; posterior extremity of the abdomen visible ; antennæ ten jointed, the last three lamellar-claviform ; the mandibles corneous, projecting on the exterior side, sinuous or crenulated ; jaws squamose, dentated or spinous ; chin oval or ovoid, truncated or obtuse before ; labium membranous, concealed under the head.

Scarabæus Hercules.—THE HERCULES BEETLE.

Plate XCVIII. fig. 1.

Head of a deep shining black ; the male provided with a long incurvated horn ; thorax black, with a projecting retrousse horn, somewhat notched above ; elytra brown, with black spots. Inhabits the Antilles.

Genus MELOLONTHA.—*Latreille*.

Generic Character.—Antennæ ten jointed, the club in the males formed of from five to seven oval compressed leafy joints ; body oblong, gibbous, and frequently hairy ; head rounded or notched, and somewhat marginated ; eyes rounded, projecting ; thorax slightly convex ; scutellum usually heart-shaped ; elytra somewhat shorter than the abdomen, slightly margined on each side ; anterior legs having two or three lateral teeth ; tarsi consisting of five joints.

Melolontha vulgaris.—THE COCK-CHAFER.

Plate XCVIII. fig. 2.

Body black ; the members reddish-bay ; lateral borders of the thorax somewhat dilated, and rounded in the middle, with a black or red cicatrix near the margins of each ; each elytra with four longitudinal ribs ; breast gray and downy, the margins of the abdomen with a series of white triangular spots. Inhabits Europe.

SECTION II.—HETEROMERA —With the first four tarsi composed of five joints and the last two of four.

TRIBE I.—MELASOMA.

Joints of the tarsi for the most part entire ; antennæ moniliform, always inserted under the lateral and projecting borders

of the head; the third joint elongated; extremity of the mandible cleft; a corneous hook on the inner sides of the jaws.

Genus TENEBRIO.—*Linnaeus*.

Generic Character.—Antennæ consisting of eleven joints, slightly thickened towards the end; the last joint globular, and the third one angulated; upper lip visible; last joint of the palpi a little thicker than the preceding, conico-cylindrical, compressed; maxillaries projecting; chin nearly square.

Tenebrio molitor.—THE MEAL BEETLE.

Plate XCVIII. fig. 7.

Somewhat glabrous, and of a deep chestnut; paler below; thorax square and marginated; elytra striated; anterior thighs thicker than the rest. Inhabits Europe.

TRIBE II.—TAXICORNES.

With the mandibles cleft at their extremity; joints of the tarsi entire, excepting the four anterior ones; antennæ as long as the head and thorax; gradually thickening, or claviform at tips, and generally partly foliated.

Genus DIAPERIS.—*Latreille*.

Generic Character.—With an oval, convex body; antennæ perfoliated their whole length, elytra coriaceous; with two membranous folded wings; the tarsi of the four anterior feet with five joints in each; males in many with two horns on the head, of greater or less length.

Diaperis boleti.—THE MUSHROOM DIAPERIS.

Plate XCVIII. fig. 5.

Black with three yellow bands across the elytra. Inhabits England, and is found on the boleti and other fungi.

TRIBE III.—STENELYTRA.

With the jaws unarmed, but the mandibles sometimes ending in an acute point; penult joint of the tarsi bilobate; antennæ longer than the head and thorax in many species, filiform or setaceous, and not visibly perfoliated.

Genus HELOPS.—Fabricius.

Generic Character.—Antennæ filiform, somewhat longer than the thorax, composed of eleven joints, of which the last three are short and round; mandibles bifid at their extremity; palpi four; last joint of the maxillaries securiform; labium slightly notched; chin nearly square.

Helops violaceus.—THE VIOLET HELOPS.

Plate XCVIII. fig. 10.

Head, thorax, and elytra, violet-coloured; legs and antennæ gray. Inhabits Britain, on the bark of trees in sandy situations.

TRIBE IV.—TRACHELIDES.

With a triangular heart-shaped head, and detached from the thorax; antennæ simple, flabelliform, pectinated, or serrated; jaws devoid of corneous teeth on the internal side; hooks of the tarsi entire, the penult joint having a double lobe in most of the species.

Genus MORDELLA.—Linnaeus.

Generic Character.—The tarsi having all their joints entire; the maxillary palpi ending in a larger joint than the preceding, and dolabriform; antennæ simple or serrated; last segment of the abdomen prolonged into an acute point in the females.

Mordella aculeata.—THE ACULEATED MORDELLA.

Plate XCVIII. fig. 15.

Dusky-black and shining, spotless, invested with silky down; antennæ serrated; the female with the last abdominal segment prolonged into a point; ovipositor the same length as thorax. Inhabits gardens in Britain.

SECTION III.—TETRAMERA.—All the tarsi having four joints.

TRIBE I.—RHYNCHOPHORA.

Head anteriorly prolonged in the form of a rostrum, and having a terminal mouth, or into a proboscis; antennæ in most of the species claviform, geniculate, and inserted on the proboscis; abdomen large; penult joint of the tarsi generally bilobed.

Genus ATTELABUS.—Linnaeus.

Generic Character.—Without a conspicuous labrum; with minute conical palpi; the antennæ straight, and consisting of eleven joints, the last three forming a perfoliated club; rostrum broad, dilated at the end; without any visible neck; mandibles cleft at their points; legs terminated by two strong hooks.

Attelabus coryli.—THE HAZEL ATTELABUS.

Plate XCVIII. fig. 12.

Black, the elytra red and reticulated. Inhabits Europe, and is found on the hazel.

TRIBE II.—XYLOPHAGI.

Joints of the tarsi mostly entire, or if the penult joint is bilobate, the palpi are small and conical; antennæ frequently with less than eleven joints, perfoliated at the base, or thickened and clavate at the extremity.

Genus PAUSSUS.—Linnaeus.

Generic Character.—Antennæ consisting of two joints, the last one very large, dentated, or hooked, nearly ovate or orbicular; with a small, transversely square, coriaceous labrum; palpi four, which are conical or subulate, short and thick, the maxillaries a little longer than the labials; with a corneous, nearly oval labium, having a longitudinal keel in the middle; tarsi short, cylindrical.

Paussus microcephalus.—THE MINUTE-HEADED PAUSSUS.

Plate XCVIII. fig. 14.

The head excessively small; blackish-brown. Inhabits Sierra Leone.

TRIBE III.—PLATYSTOMA.

With all the tarsal joints entire; body oblong, depressed, with a triangular or cordiform head, as broad as the body, but narrowed into a kind of neck posteriorly; mandibles projecting, but most developed in the males; labrum small; palpi short; thorax nearly square; antennæ filiform.

Genus CUCUJUS.—Fabricius.

Generic Character.—With moniliform antennæ, which are shorter than the body; labrum advanced between the mandibles; labium bifid; body greatly depressed; tarsi short.

Cucujus Dejeani.—DEJEAN'S CUCUJUS.

Plate CI. fig. 11.

Fulvous, with the antennæ, tibiæ, tarsi, and posterior half of the elytra black; the mandibles long, curved, and bifid at the tip. The females are like the other sex, except that the mandibles are very short. Seven inches long. Inhabits Brazil.

TRIBE IV.—LONGICORNES.

First three joints of the tarsi provided with pencils below, and the intermediate two broad, triangular, or heart-shaped; the third deeply bilobate; labium triangular or cordiform, notched or bifid; antennæ filiform or setaceous, the same length as the body, sometimes longer, in some species inserted in a notch of the eyes sometimes outside; feet long, slender, with long tarsi; body elongated.

Genus PRIONUS.—Geoffroy.

Generic Character.—Body elongated and depressed; head directed forward and flattened; mandibles strong, and anteriorly dentated; palpi terminated by a larger joint, conical, or in the form of a reversed triangle; antennæ always longer than the thorax, serrated or pectinated in some, in others spinous or simple; thorax edged, dentated, or unequal.

Prionus coriarius.—THE TANNER PRIONUS.

Plate XCVIII. fig. 8.

Antennæ thick and serrated; thorax armed on each side with three sharp spines; the whole insect of a deep chocolate brown. Inhabits the hollows of decayed trees in Britain.

TRIBE V.—EUPODA.

Body oblong; antennæ filiform, thickening towards the point, and inserted near the eyes, about the length of the head and thorax; thorax narrow, cylindrical, or square, receiving the head

as far as the eyes ; terminal and exterior lobe of the jaws widened towards its extremity.

Genus MEGALOPUS.—*Fabricius*.

Generic Character.—Antennæ short, somewhat serrated ; mandibles strong, acute, and entire, crossed at their point ; palpi equal, filiform ; body flattened ; thorax short, subquadrate ; feet strong ; tarsi short.

Megalopus nigricornis.—THE BLACK-HORNED MEGALOPUS.

Plate XCVIII. fig. 13.

Body fawn-coloured yellow ; antennæ, legs, and feet, black ; a black spot on the thorax ; elytra greenish drab-colour, and downy, with distant dots ; the external margin and suture black. Inhabits South America.

TRIBE VI.—CYCLICA.

The labium thick, and nearly square or oval, entire, or a little notched ; exterior and terminal division of the jaws cylindrical, of a black and brown colour ; body either oval or ovoid, globular, or somewhat square ; with filiform or setaceous antennæ, sometimes thickened into an elongated club, but never an oval or rounded one ; the three first tarsal joints spongy, or provided with brushes below.

Genus CASSIDA.—*Latreille*.

Generic Character.—Antennæ filiform, inserted on the upper part of the head, with their base approximate ; head concealed under the thorax, or received into a fissure, at its anterior extremity ; body nearly circular or square, and generally margined by the elytra.

Cassida viridis.—THE GREEN CASSIDA.

Plate XCVIII. fig. 9.

Rich green above, and black below ; elytra with some faint dotted striæ ; feet red, and the lower half of the thigh black. Infests the artichokes and thistles of Britain.

TRIBE VII.—CLAVIPALPI.

First joints of the tarsi provided with brushes, and the last

joint bifid; antennæ ending in an oval perfoliated club; jaws with an anterior horny tooth; palpi terminated by a joint of increased size; body orbicular or oval.

Genus EROTYLUS.—*Latreille*.

Generic Character.—The antennæ having nearly cylindrical intermediate joints, the last one with an oblong club; interior and front of the jaws with teeth; body gibbous, ovate; penult joint of the tarsi bilobate.

Erotylus giganteus.—THE GIGANTIC EROTYLUS.

Plate XCVIII. fig. 4.

Black, the elytra spotted with deep orange-red. Inhabits India.

SECTION IV.—TRIMERA.

All the tarsi provided with three joints; the antennæ thickest at their extremity, or claviform; with a hemispherical or oval body.

TRIBE I.—APHIDIPHAGI.

Tarsi two hooked, the first joint distinct; elytra covering the abdomen wholly, and not truncated; antennæ shorter than the thorax, with a club-shaped termination, or in the form of a reversed triangle; maxillary palpi with a very large dolabriform terminal joint; body hemispherical; thorax short, nearly luniform.

Genus COCCINELLA.—*Linnaeus*.

Generic Character.—Body hemispherical; elytra convex, coriaceous, beneath which are two membranaceous folded wings; with a convex thorax, which is narrower than the elytra; head small, and placed in a groove or cavity; antennæ eleven-jointed, short, the first large, and the others granulated, the last three slightly clavate; mandibles short, with two horny ciliated jaws.

Coccinella 14 guttata.—THE FOURTEEN-SPOT COCCINELLA.

Plate XCVIII. fig. 18.

Orange, with fourteen white spots. Inhabits Britain.

TRIBE II.—FUNGICOLÆ.

Tarsi with two hooks at their termination, first joint distinct, elytra covering the abdomen; antennæ longer than the head and thorax, with filiform maxillary palpi, or simply thickened towards the points; body ovate.

Genus EUMORPHUS.—Weber.

Generic Character.—Antennæ somewhat shorter than the thorax, the third joint very long, the last three forming a compressed, and nearly triangular club; with filiform maxillary palpi, the last joint with a clavate triangular termination; body oval, narrower before; thorax square and depressed.

Eumorphus Kirbyanus.—KIRBY'S EUMORPHUS.

Plate XCVIII. fig. 16.

Black, shining, the elytræ with two fulvous spots on each. Inhabits India.

TRIBE III.—PSELAPHII.

With short truncated elytra; the first joint of the tarsi short and distinct.

Genus PSELAPHIUS.—Herbst.

Generic Character.—The elytra truncated, and shorter than the abdomen; tarsi three-jointed, the first very short, last ending in a single hook; antennæ eleven-jointed, the greater part of which are granulated, the last three large and oval; maxillary palpi projecting, ending in a large tumid joint, with a pointed termination; with small filiform labial palpi.

Pselaphus Herbstii.—HERBST'S PSELAPHUS.

Plate XCIX. fig. 10.

Body and elytra dark chestnut-brown; antennæ and legs yellow.

ORDER V.—ORTHOPTERA.

With coriaceous elytra, the margin of the one resting on that of the other; mouth provided with mandibles; the wings folded

longitudinally, and sometimes also transversely; subject to a half complete transformation only.

SECTION I.

Elytra and wings horizontal; feet formed for running.

TRIBE I.—FORFICULARIÆ.

Tarsi having three joints; elytra nearly crustaceous, without reticulation, short, posteriorly truncated, joining in a straight suture, and covering two plicated wings; points of wings projecting beyond the elytra, while in repose; abdomen terminated by horny forceps.

Genus FORFICULA.—*Linnaeus*.

Generic Character.—Elytra short and crustaceous, wings arranged under them like a fan; abdomen terminated with a pair of scaly pieces, forming forceps; tarsi with three joints, the second of which is bifid; antennæ filiform, consisting of twelve or thirteen nearly cylindrical joints; palpi filiform; labium with deep divisions.

Forficula auricularia.—THE EARWIG.

Plate XCIX. fig. 4.

With an elongated body, of a rusty-brown colour; antennæ fourteen-jointed; eyes black; thorax dusky in the middle, and yellow on the sides; the forceps brown. Half an inch long. Inhabits Europe.

TRIBE II.—BLATTARIÆ.

Tarsi four-jointed; wings doubled longitudinally, and covered by elytræ, frequently coriaceous and thin, and reticulated; body always depressed, ovate or orbicular, the head concealed under a semicircular or orbicular thorax; maxillary palpi long, and terminated by an elongated axe-shaped process; feet spinous.

Genus BLATTA.—*Linnaeus*.

Generic Character.—Antennæ setaceous, longer than the body, inserted near the margin of the eyes; many-jointed, very short, and not distinct; feet formed for walking; abdomen ter-

minated by two short appendages; clytra horizontal; body ovate, depressed; head triangular and inclined.

Blatta livida.—THE BLUISH BLATTA.

Plate XCIX. fig. 3.

Body and head brown, wings fuscous, transparent, antennæ and legs yellow. Inhabits Britain.

TRIBE III.—MANTIDES.

Having five jointed tarsi; wings simply folded longitudinally; body elongated; head free from covering, with short filiform palpi; the two anterior feet much longer than the others, with elongated haunches, strong, compressed thighs, and the legs terminated by a strong hook, capable of being folded under the thighs; thorax large.

Genus MANTIS.—*Linnæus*.

Generic Character.—With an elongated narrow body; head uncovered; two anterior feet longer than the rest; haunches long, thighs strong, with spines below; legs dentated, and terminated by a strong hook; thorax narrow and elongated; antennæ simple in both sexes and setaceous; forehead prolonged like a horn.

Mantis precaria.—THE PRAYING MANTIS.

Plate XCIX. fig. 5.

Of a fine green-colour, the thorax spined on each side, and the upper wings each marked in the middle by a semi-transparent spot. Inhabits Africa. Held in great veneration by the Hot-tentots.

TRIBE IV.—SPECTRA.

Lower lips with unequal divisions; the anterior lip notched at its anterior margin; antennæ inserted nearer the mouth than the middle of the head, which is projecting, elongated, and posteriorly rounded; the eyes small; first segment of the thorax short, or very little longer than the second.

Genus PHYLLIUM.—*Illiger*.

Generic Character.—Tarsi five-jointed; clytra and wings

placed horizontally on the body, which is foliaceous, depressed, and elongated, narrow before and wide behind; head uncovered; abdomen very large, oval, greatly depressed, and membranaceous; thighs foliaceous and large, covering the legs and tarsi when these parts are folded up.

Phyllium siccifolia.—THE DRIED LEAF PHYLLIUM.

Plate XCIX. fig. 6.

Body greatly depressed, of a pale-green or reddish-yellow colour. Inhabits India.

SECTION II.

Elytra and wings (with the exception of those of the first tribe) sloped like a roof; the posterior feet and thighs very large, and formed for leaping.

TRIBE V.—GRYLLIDES.

With horizontal elytra and wings; filiform or setaceous antennæ; tarsi having three joints.

Genus GRYLLO-TALPA.—*Latreille*.

Generic Character.—Tarsi and legs of both anterior feet broad, depressed, and indented like hands, calculated for digging; other tarsi of ordinary shape, terminated by hooks; antennæ slender at the tips, elongated and composed of many articulations.

Gryllo-Talpa vulgaris.—THE MOLE CRICKET.

Plate XCIX. fig. 8.

Dusky-brown; tail provided with two horny tail-shaped excrescences; breast black, and covered with hairs. Inhabits Britain.

TRIBE VI.—LOCUSTARIÆ.

The wings and elytra are sloped like a roof; tarsi four-jointed; with setaceous antennæ.

Genus LOCUSTA.—*Latreille*.

Generic Character.—With four jointed tarsi; the antennæ long and setaceous, having many indistinct joints; palpi four,

2 x 2

unequal, the anterior with five joints, and the posterior with three; head large and vertical; eyes small, orbicular; thorax compressed on the sides, elytra inclined; abdomen of the female terminated with an edged tail; legs formed for leaping; the anterior ones appearing to grow from under the head; the posterior ones very large and strong.

Locusta flavipes.—THE YELLOW-LEGGED LOCUST.

Plate XCIX. fig 9.

Head, thorax, and abdomen dark purplish brown, wings dusky yellow, thin and transparent; legs yellow. Inhabits Britain.

SECTION III.

The elytra and wings sloping like a roof; the posterior feet formed for leaping; the tarsi having all five joints; elytra in both sexes the same; antennæ shaped like a sword, filiform, and clavate in both sexes, or in the males only.

TRIBE VII.—ACRIDITES.

The posterior feet are shorter than the body, weak, and not properly constructed for leaping; body tumid; eyes equidistant.

Genus ACRIDIUM.—*Geoffroy*.

Generic Character.—With filiform antennæ, inserted between the eyes a little way from the internal border; mouth uncovered; palpi not compressed; legs constructed for leaping; tarsi with three joints; a spongy ball between the hooks.

Acrydium migratorium.—THE MIGRATORY LOCUST.

Plate XCIX. fig. 7.

With yellowish-brown antennæ; head green or brown; mandibles bluish black; thorax green and carinated; dorsal lines and lateral spot black; wings transparent and tinged with green; feet dusky inside; posterior thighs black, spotted; legs reddish. Two inches long. Inhabits Europe and the Levant.

ORDER VI.—HEMIPTERA.

Having two wings, covered by elytra; mouth formed for

suction, the rostrum consisting of an articulated tubular sheath, which includes four scaly setæ, instead of mandibles and jaws; some species have crustaceous elytra, with membranous posterior extremities; in others they are similar to wings, but more extended, thicker and coloured.

SECTION I.—HETEROPTERA.

The rostrum attached to the anterior extremity of the head; with horizontal wings and elytra, terminated abruptly by a membranous appendage.

TRIBE I.—GEOCORISÆ.

With the antennæ inserted near the internal margin of the eyes, and longer than the head; tarsi three-jointed, the first very short.

Genus CIME X.—*Linnæus*.

Generic Character.—Rostrum short, three-jointed, as well as the tarsi, the first very short; body apterous, ovoid, membranous, and depressed; the posterior part of the head received into a short transverse thorax; antennæ placed before the eyes; somewhat longer than the head and thorax, setaceous and four-jointed, the second and third very large.

Cimex prasinus.—THE LEEK GREEN BUG.

Plate XCIX. fig. 2.

Body green, without spots, yellowish-green below; abdomen black above, the margin spotted with yellow; legs six, of a yellow colour; antennæ reddish-brown; three last joints tipped with black. Inhabits Europe.

TRIBE II.—HYDROCORISÆ.

The antennæ inserted under the eyes, concealed, and not exceeding the length of the head; joints of the tarsi never exceeding four.

Genus NEPA.—*Latreille*.

Generic Character.—A large folding hook formed under the thighs, from the union of the legs and tarsi; tarsi consisting of a single joint; antennæ semiforked; body oval, greatly de-

pressed; head small, partly concealed in the notch of the thorax; scutellum large; abdomen terminated by two setaceous filaments; four posterior tarsi constructed for swimming.

Nepa cinerea.—THE ASH-COLOURED NEPA.

Plate XCIX. fig. 1.

Deep ash-coloured, abdomen broad, ovate, depressed, and red above; scutellum large and triangular; anterior feet directed forwards. Inhabits stagnant waters of Europe.

SECTION II.—HOMOPTERA.

Rostrum emanating from the lower part of the head, between the two anterior feet; elytra equal throughout, sometimes wing-shaped.

TRIBE III.—CICADARIÆ.

Having elytra and wings; all the tarsi with three joints; antennæ mostly small, conical or subulate, consisting of from three to six joints, including the seta, by which they are terminated. The females provided with a dentated ovipositor.

Genus *FULGORA*.—*Linnaeus*.

Generic Character.—Tarsi three-jointed; antennæ inserted under the eyes, having two or three joints, the last large and globular, with a tubercle, topped by a seta; rostrum long, double, or triple jointed; elytra and wings sloping; feet of middle length, the posterior legs spinous; tarsi with a double hooked termination or by a ball.

Fulgora lanternina.—THE LANTERN FLY.

Plate C. fig. 10.

With a projecting vascular front, rounded at its extremity, and provided on each side with four rows of spiny flattened, reddish tubercles; thorax pale and elytra yellow; wings gray, with a large spot surrounded by a black circle, and two central spots; feet yellow. Three and a half inches long. Inhabits South America.

TRIBE IV.—HYMENELYTRA.

Tarsi two-jointed, the last usually with a double hook, or

vesicular and destitute of hooks ; antennæ consisting of ten or eleven joints, and longer than the head ; body soft.

Genus THRIPS.—*Linnæus*.

Generic Character.—Rostrum placed in the lower part of the head, very small ; palpi short, filiform, three-jointed ; elytra and wings nearly similar, linear, with ciliated margins, and extending horizontally over the abdomen ; tarsi two-jointed, the last one vascular ; antennæ eight-jointed, nearly setaceous, the length of the head and thorax ; anterior segment of the trunk greatly longer than the others ; body linear.

Thrips physapus.—THE PHYSAPUS THRIPS.

Plate C. fig. 11.

Black, with white transparent wings, and a hairy marginal fringe. Inhabits Europe, on various flowers.

TRIBE V.—GALLINSECTA.

Tarsi having but one joint and terminated in a single hook ; male having no rostrum, with two wings or elytra ; females apterous, provided with a rostrum ; generally fix themselves at the time of depositing their ova, and take the figure of a gall, which covers the ova, antennæ composed of eight or nine joints in some, and eleven in others, and sometimes from twenty to twenty-four.

Genus COCCUS.—*Linnæus*.

Generic Character.—Tarsi single jointed, with a single hook at its termination ; male without a rostrum ; wings covering the body horizontally ; abdomen terminated by setæ ; female apterous, and having a rostrum ; antennæ filiform or setaceous, eleven jointed.

Coccus cacti.—THE COCHINEAL COCCUS.

Plate C. fig. 1.

Male small ; anterior antennæ shorter than the body, which is elongated, and of a deep red colour, terminated by two long diverging setæ ; wings large, white, and crossed over the abdomen. The female nearly double the size of the male ; deep brown, depressed underneath ; feet very short. Inhabits Mexico.

ORDER VII.—NEUROPTERA.

With four naked, transparent, reticulated wings; mouth formed for mastication; jaws and lips straight and extended; joints of the tarsi variable, but generally entire.

SECTION I.—SUBULICORNES.

With subulate antennæ scarcely longer than the head, consisting of seven joints, the last formed of a seta; mandibles and jaws covered by lips, or an anterior projection of the head; eyes large and projecting; wings horizontally extended, or perpendicular.

TRIBE I.—LIBELLULINÆ.

Tarsi three-jointed; mandibles and jaws very strong, and corneous; wings unequal; no internal setæ or filaments on the abdomen; sexual organs under the second abdominal annulation.

Genus LIBELLULA.—*Linnaeus.*

Generic Character.—Wings, while in repose, horizontally extended; head nearly globular; antennæ short, ending in a jointed seta; eyes contiguous, and very large; the three lip pieces joined by a suture, the middle piece being longer than the lateral ones; abdomen long, subdepressed, and pointed.

Libellula quadrimaculata.—THE FOUR-SPOTTED DRAGON-FLY.

Plate C. fig. 7.

Head and thorax dark brown; abdomen yellow, the segments next the tail dark umber-brown; upper margin of the wings with two brown spots on each; tail bifurcate. One inch and three-fourths long. Inhabits Britain.

TRIBE II.—EPHEMERINÆ.

Tarsi four-jointed; body very soft; inferior wings much smaller than the superior ones, and in some species nearly imperceptible; abdomen terminating in two or three lengthened filaments.

Genus EPHEMERA.—*Linnaeus.*

Generic Character.—With very short antennæ, terminated by a seta; upper lip covering the mouth; mandibles either none or very small; palpi very short, and indistinct; tarsi five-jointed.

Ephemera vulgata.—THE COMMON DAY-FLY.

Plate C. fig. 8.

Body brown and yellow; wings brown, with five or six spots of a deeper colour; three filaments of the tail greatly longer than the wings. Inhabits Europe in lakes and rivers.

TRIBE III.—PLANIPENNES.

Tarsi five-jointed, antennæ filiform or setaceous, composed of many joints; forehead with a rostrum, or prolonged and narrowed like a beak; lower wings sometimes long and narrow.

Genus PANORPA.—*Latreille.*

Generic Character.—Wings with wide reticulations; antennæ setaceous; eyes smooth; palpi four; tarsi ending in two hooks and a ball; male having the three last abdominal segments in the form of rounded knots, the last largest; female abdomen long and pointed.

Panorpa communis.—THE COMMON PANORPA.

Plate C. fig. 2.

Body rather long, wings transparent, elegantly variegated with deep brown spots; tail of the male furnished with forceps, like a lobster's claw. Inhabits Europe in meadows.

TRIBE IV.—PLICIPENNES.

Destitute of mandibles; inferior wings broader than the superior ones, and longitudinally folded; antennæ usually long, setaceous, and many-jointed; tarsi with five joints; maxillary palpi mostly long and setaceous.

Genus PHRYGANEA.—*Latreille.*

Generic Character.—Head small; lower wings large, and folded; tarsi five-jointed; mandibles hardly visible; with long setaceous antennæ, four setaceous palpi; the anterior ones long five-jointed; posterior feet long, legs long and spinous.

ORDER VIII.—HYMENOPTERA.

With four naked veined wings, unequal in size ; mouth composed of jaws, mandibles, and two lips ; the lip tubular at its base, terminated by a labium, which is either double or folded in, and forming a sort of sucker ; females provided with a compound ovipositor near the vent.

SECTION I.—TEREBRANTIA.

Abdomen of many species sessile, that of the females furnished with an ovipositor or borer ; antennæ with twelve or thirteen joints, less or more.

TRIBE I.—SECURIFERA.

Abdomen quite sessile, or intimately united at its base its whole breadth, to the metathorax ; larvæ with six feet, either scaly or membranaceous.

Genus TENTHREDO.—*Linnaeus*.

Generic Character.—In both sexes the antennæ are simple, and nine-jointed in most species, and others with ten or fourteen ; two radial and four cubital cells, of which the second and third receive a recurvent nerve, the fourth being circumscribed by the posterior margin of the wing.

Tenthredo scrophulariæ.—THE SCROPHULARIA TENTHREDO.

Plate C. fig. 6.

Head, thorax, and abdomen black, with transverse bands of yellow ; wings reddish-brown and transparent. Inhabits England on the water betony.

TRIBE II.—PUPIVORA.

Wings of many species with numerous small cells, and others divested of longitudinal nerves ; first abdominal segment posteriorly inclosing the metathorax, and forming part of it ; the second segment fixed to the first by a peduncle.

Genus ICHNEUMON.—*Latreille*.

Generic Character.—With a petiolate abdomen ; superior

wings reticulated ; antennæ at least twenty-jointed, simple, setaceous or filiform, and long ; nine of the joints are unequal, the second dilated, the last three slender and elongated ; the labial short, four-jointed, the last one ovate.

Ichneumon manifestator.—THE NOTORIOUS ICHNEUMON.

Plate C. fig. 12.

Body black ; wings gray ; legs dusky. Inhabits Europe.

SECTION II.—ACULEATA.

With a pediculated abdomen in the females, and those called neuters, inclosing a sharp sting of three pieces, provided with glands filled with an acrid fluid ; antennæ of the male with thirteen joints, and that of the female with twelve.

TRIBE III.—HETEROGYNA.

The females and neuters of those which live in society without wings, having geniculate antennæ ; a small rounded and vaulted labium.

Genus FORMICA.—*Latreille*.

Generic Character.—Without a sting ; antennæ placed near the middle of the anterior portion of the head ; with strong triangular dentated mandibles ; peduncle of the abdomen having one ring, formed like a compressed vertical scale.

Formica Herculanea.—THE HERCULEAN FORMICA.

Plate C. fig. 9.

The antennæ of the neuters are black ; the head large, black, and shining, slightly covered with hairs ; thorax blood-red. Inhabits Europe in dead trees.

TRIBE IV.—FOSSORES.

The individuals are of two kinds, male and female, having extended wings.

Genus AMMOPHILA.—*Küby*.

Generic Character.—Mandibles interiorly indented ; antennæ placed near the middle of the head ; jaws and lip forming a spu-

rious trunk, considerably longer than the head, and bent in the middle; palpi very slender; with cylindrical joints.

Ammophila viatica.—THE WAYSIDE AMMOPHILA.

Plate C. fig. 5.

Black, beset with hairs; second and third segment of the abdomen reddish brown; upper wings brown. Inhabits England.

TRIBE V.—DIPLOPTERA.

Wings longitudinally folded; antennæ geniculate in most species, and thickened or clavate towards the extremity; eyes notched; prothorax extending laterally to the origin of the superior wings; feet of middle length, and not constructed for collecting pollen.

Genus VESPA.—*Linnaeus*.

Generic Character.—Labium consisting of three parts, straight, the middle one heart-shaped, slightly elongated, with four glandular projections at the extremity; maxillary palpi six-jointed, and the labia four-jointed, mostly short and subconic; mandibles short, hardly longer than broad, obliquely truncated at the tips; hood nearly square, the middle of the anterior margin truncated with a tooth on each side; abdomen oval, conical, and truncated at the base before.

Vespa crabro.—THE HORNET.

Plate C. fig. 3.

Antennæ dusky, rust-coloured at the base; head ferruginous, downy; mandibles yellow at the base, and black at the tips; thorax black, downy, brownish in front; first ring of the abdomen black, rusty at the base, the others black and yellow. Inhabits Europe, in hollows of aged trees.

TRIBE VI.—MELLIFERA.

The wings of all the individuals are extended; posterior tarsi with a large, compressed, square, or triangular first joint; generally provided with a tuft for collecting the pollen of flowers; jaws and lips usually long and narrow, forming a long proboscis; chin prolonged, and supported on a moveable pedicle; with a lanceolate, or filiform, long and hairy labium.

Genus APIS.—*Linnaeus.*

Generic Character.—With a filiform labium, which with the jaws form a sort of proboscis, which is geniculate, and bent downwards; posterior tarsi, with a large, much compressed first joint; last two legs destitute of spines at their extremities; superior wings with one radial and three cubical cells.

Apis retusa.—THE RETUSE BEE.

Plate C. fig. 4.

Body pale brown, legs hairy, wings transparent, with an elongated cleft proboscis, and three bristles betwixt them. Inhabits Britain.

ORDER IX.—LEPIDOPTERA.

With four membranaceous wings, covered with a scaly farina; and provided with a trunk which is spirally rolled up at the mouth.

TRIBE I.—DIURNA.

Wings free while in repose, perpendicular to the back, and without a bridle at the base of the inferior wings; antennæ in most species with a button-shaped or claviform termination; somewhat triangular, and in some genera hooked at the tips.

Genus PAPILIO.—*Latreille.*

Generic Character.—With a naked angular chrysalis; perfect insects with six feet formed for walking; four wings perpendicularly elevated while in repose.

Papilio Apollo.—THE APOLLO BUTTERFLY.

Plate CI. fig. 2.

Thorax deep brown, wings pale yellow, slightly indented on their margin; superior wings with black spots, inferior wings with four scarlet eye-like spots, white in the centre, and surrounded by a ring of black. Inhabits Europe.

TRIBE II.—CREPUSCULARIA.

A strong, pointed, stiff, horny bristle, placed at the exterior

border of the under wings, near their origin ; which fits into a groove below the upper wings, and keeps the four in a horizontal position while in repose ; antennæ claviform and elongated, those of many males, and sometimes both sexes, strongly pectinated or serrated ; caterpillars always having six legs.

Genus SPHINX.—*Latreille.*

Generic Character.—Lower palpi having but two visible joints, the third being small, contiguous, and scaly ; antennæ commencing their club form near the centre, simple, or having three transverse striæ, bearded, but never strongly serrated ; tongue corneous ; body short and thick ; eyes large ; wings nearly horizontal, and forming a triangle with the body ; abdomen conical ; feet thick ; the tarsi ending in two simple hooks.

Sphinx Atropos.—THE DEATH'S HEAD SPHINX.

Plate CL fig. 5.

Upper wings dark grey, with zigzag marking of black, orange and white ; body orange-coloured, barred with black ; on the top of the thorax is a large pale ochre-yellow mark, exactly resembling a human skull. Inhabits Britain.

TRIBE III.—~~NOCTURNA.~~

All the wings horizontal, or forming an inclined plane when in a state of repose ; the antennæ are setaceous.

Genus BOMBYX.—*Fabricius.*

Generic Character.—With entire, horizontally extended, or inclined wings, forming a triangle with the body ; upper palpi concealed, the lower ones very small, in form of tubercles, cylindrical or conical, diminishing in thickness towards their point ; tongue, if it exists, not perceptible ; antennæ pectinated, especially in the males ; abdomen very large in the females ; caterpillar with fourteen or sixteen feet ; those with fourteen feet having a forked tail in place of the last two feet.

Bombyx pavonia major.—THE PEACOCK MOTH.

Plate CL fig. 9.

Wings round, variegated with deep and pale gray, black brown, and purplish brown ; with a deep edging of pale brown ; web of

the wings with an eye-like spot. Inhabits the south of Europe.

ORDER X.—STREPSIPTERA.

With two naked membranous wings, accompanied by two balancers, which are longitudinally folded, forming nearly the quadrant of a circle; anal opening styliferous; transformation incomplete.

Genus XENOS.—Kirby.

Generic Character.—With antennæ triarticulate at the base, separated into two, slender, elongated, semicylindrical equal branches, destitute of joints.

Xenos Peckü.—PECK'S XENOS.

Plate XCIX. fig. 11.

Blackish fuscous; antennæ with semicircular branches, dotted with white; tarsi fuscous. Inhabits America.

ORDER XI—DIPTERA.

Provided with six feet; two membranaceous extended wings, under each a balancer, in most species; mouth composed of a sucker, consisting of a variable number of scaly setaceous pieces, either inclosed in the upper furrow of a sheath, or inarticulated proboscis, and terminated by two lips, or cased in one or two plates.

SECTION I.

Head distinct from the thorax, large, or middle-sized; hooks of the tarsi simple or one toothed; sucker enveloped in a sheath; larva having the body and cocoon, when it is formed of the skin of the caterpillar, always annulated its whole length.

TRIBE I.—NEMOCERA.

Antennæ having at least six joints; but the ordinary number fourteen or sixteen; the larvæ with a scaly head, and changing their skin before passing into the pupa condition.

Genus CULEX.—*Linnaeus.*

Generic Character.—With setaceous antennæ, consisting of about fourteen hairy joints, forming a tuft in the males; rostrum long, enveloping a sucker of five pieces; wings placed horizontally on the body, with scales on the nerves.

Culex pipiens.—THE GNAT.

Plate CI. fig. 4.

Body ash-coloured; abdominal segments with a brown line; wings transparent, with a slight dusky tinge; male with plumose antennæ; three lines long. Inhabits Europe!

Genus TIPULA.—*Linnaeus.*

Generic Character.—With simple, nearly setaceous antennæ consisting of thirteen joints, of which the first is the largest, and nearly cylindrical, the third elongated; eyes oval, and entire; destitute of ocelli; rostrum very short, terminated by large lips; last joint of the palpi long and nodulous; wings posteriorly reticulated; legs very long; abdomen club-shaped in the males, and in the females ending in a scaly bivalve point.

Tipula oleracea.—THE POT-HERB TIPULA.

Plate CI. fig. 1.

Grayish-brown; spotless, wings with a brown exterior border. Inhabits meadows in Europe.

TRIBE II.—TANYSTOMA.

Rostrum frequently long, wholly or in part concealed; sucker consisting of six pieces; larvæ with a broad head, and change their skin when passing into the pupa condition.

Genus TABANUS.—*Linnaeus.*

Generic Character.—Sucker consisting of six pieces, enveloped in a projecting double-lipped, membranous rostrum, upon which are placed two conical palpi; antennæ little longer than the head, formed of three pieces, the last thick, elongated, and crescent-shaped below, and subulate at the point, and of five annulations; eyes banded or spotted, occupying nearly the whole head; three small ocelli; wings horizontal, distinct, and triangular; abdomen conical; tarsi provided with long tufts.

Tabanus tropicus.—THE TROPICAL TABANUS.

Plate CI. fig. 7.

Mouth with a membranaceous proboscis; two equal lips; haustellum projecting and received into a groove; antennæ short, approximate and cylindrical, with seven articulations; of a dull brown and yellow colour. Inhabits Britain.

TRIBE III.—NOTACANTHA.

Sucker of two pieces; rostrum in most species membranous, short and concealed, except its two large terminal lips; in others it is long, slender and syphon-shaped, hidden by a beak supporting the antennæ, of which the joint is divided into many annulations varying in form and length; wings resting on the body; and having a central radiated areola.

Genus STRATIOMYS.—*Geoffroy*.

Generic Character.—Sucker never having more than two setæ, enveloped in a short, retractile doubly lobate, and membranaceous sheath; antennæ consisting of three principal pieces, longer than the head, the second and third pieces forming a compressed fusiform body of six joints, and pointed at the end, with style or seta; head round; thorax cylindrical; scutellum with two points; wings long, resting upon each other; abdomen dilated in the middle; tarsi with three balls.

Stratiomys chameleon.—THE CHAMELEON FLY.

Plate CI. fig. 8.

Head yellow, with brown eyes, and black antennæ, thorax brown, covered with yellow fawn coloured down; abdomen blackish or dusky above, with three spots of yellow on each side, and one at the tail. Inhabits Europe on flowers.

TRIBE IV.—ATHERICERA.

Sucker composed of four pieces; the two contiguous ones furnished with palpi, retracted within the sucker into a furrow of the proboscis.

Genus CONOPS.—*Linnaeus*.

Generic Character.—With straight, clavate, three-jointed antennæ, the second joint very long, cylindrical, the last one short,

conical, and terminated in a small point; proboscis with three joints, geniculate at the base, projecting and enveloping three setæ which form the sucker; lower seta much longer than the upper one; without palpi or ocelli.

Conops macrocephala.—THE LONG-HEADED CONOPS.

Plate CI. fig. 10.

Mouth with a porrected, geniculated, rostrum; antennæ clavated; the clava acuminate. Inhabits Europe.

Genus *ÆSTRUS*.—*Linnaeus*.

Generic Character.—Wings having all the posterior cells terminal; thorax smooth; extremity of the abdomen inflexed, much elongated and attenuated in the female; eyes remote.

Æstrus bovis.—THE OX GAD-FLY.

Plate CI. fig. 6.

Wings brown, immaculate; abdomen with a black band in the middle, and dusky yellow hairs at tip; front white, downy thorax yellow in front, black in the middle, and ash-coloured behind. Inhabits Europe.

TRIBE V.—PUPIPARÆ.

Many of them with wings; head and eyes of the ordinary size and form; the thorax square.

Genus *HIPPOBOSCA*.—*Latreille*.

Generic Character.—Body ovate, depressed; head small, rounded, horizontal, and attached to the thorax by a neck; antennæ placed near the mouth, each inserted in a cavity; eyes large, oval, and placed on the sides of the head; sucker projecting, filiform; thorax large; scutellum transverse; wings large, horizontal, with strong nerves near their sides; abdomen soft, and not distinctly annular; feet short.

Hippobosca equina.—THE HORSE GAD-FLY.

Plate CI. fig. 3.

Wings whitish, with a black band at the middle and two dots at the tip; abdomen yellow brown, with black spots at the divisions of the segments. Inhabits Britain.

DIVISION IV.

R A D I A T A.

This division is separated into six classes.

The animals comprehended in this division, are much more simple in their organization than those of the preceding. Differing widely in form, according to Cuvier, they agree in one striking particular, that of having all their members disposed around an axis, in two or more rays ; hence the name of the division.

The division has been reduced into six classes ; namely, I. ECHINODERMATA.—II. TUNICATA.—III. ENTOZOA.—IV. AC-ALEPHA.—V. POLYPI.—VI. INFUSORIA.

CLASS X.—ECHINODERMATA.

With a suborbicular body, having a crustaceous covering, radiated, devoid of a head, eyes, and articulated feet ; mouth placed below, simple or multiform ; having compound digestive organs ; with exterior tubes or pores for respiration.

A leading character of this class, consists in the structure being radiated, both internally and externally. The animals have orbicular bodies for the most part, with a calcareous or crustaceous envelope or skin. The internal cavity contains the viscera, and a kind of vascular system carries on a

communication with the intestines and respiratory organs. They have neither head, eyes, nor articulated feet, their organs consisting only in tubes or pores, or orifices for the transmission of water. Their members of motion are very imperfect, and their nervous system can be but indistinctly traced. They are all marine, and quickly regenerate any of their parts that are separated from them.

SECTION I.—FISTULIDES.

With a soft mobile and irritable epidermis, and an elongated, cylindrical, soft and contractile body.—It has four genera; viz. 1. *Sipunculus*; 2. *Priapulus*; 3. *Fistularia*; and 4. *Holothuria*.

Genus FISTULARIA.—*Lamarch.*

Generic Character.—Body cylindrical, soft and free; skin coriaceous, extremely rough, and covered with tubercles; mouth terminal, surrounded with dilated tentacula at the summit, the depressed part divided or dentated; anal orifice at the posterior end.

SECTION II.—ECHINIDES.

Animals protected by an immoveable solid crust; body depressed or globular, without any radiating contractile lobes; anal orifice distinct from the mouth; spiniferous tubercles fixed immoveable on the shell, but having moveable spines.—It has eleven genera; 5. *Cidarites*; 6. *Echinus*; 7. *Nucleolites*; 8. *Cassidulus*; 9. *Spatangus*; 10. *Ananchytes*; 11. *Galerites*; 12. *Echinoneus*; 13. *Fifularia*; 14. *Clypeaster*; 15. *Scutella*.

Genus 6.—*ECHINUS.*—*Linnaus.*

With a regular, globular, orbicular, or oval body; with a solid setaceous covering; beset with imperforate tubercles; upon which are articulated moveable spines; shell consisting of five compartments, each having a multiporous diverging margin or band, which extends in a radiate form from the summit to the mouth; mouth central, placed below, and protected by five long enamelled pieces, set in a conical form; anal orifice above.

Echinus esculentus.—THE EDIBLE SEA URCHIN.

Plate XCV. fig. 7.

With a hemispherical globose shell, having porous bands, and

obsoletely warted; beset with short violet-coloured spines. Four inches in diameter. Inhabits the European seas.

Genus 9.—SPATANGUS.—*Lamarch.*

Generic Character.—With an irregular, heart-shaped, subgibbous shell, covered with very small spines; having four or five unequal compartments; mouth simple, transverse, and provided with lips approaching the margin; anal orifice lateral, and opposed to the mouth.

Spatangus purpureus.—THE PURPLE SPATANGUS.

Plate XCV. fig. 6.

Heart-shaped, with four lanceolate compartments, which are placed, with the larger tubercles, in a zigzag form. Inhabits the European seas.

SECTION III.—STELLERIDES.

Having a coriaceous skin, which is not irritable, but moveable in particular points, with a short depressed body, which is broader than long, with angulated or marginal lobes, differing in number, radiating from the body and moveable; no anal orifice. It has the following genera:—16. *Asterias*; 17. *Ophiura*; 18. *Euryale*; and 19. *Comatata*.

Genus ASTERIAS.—*Linnæus.*

Generic Character.—With a suborbicular depressed body, its circumference divided into angles, lobes, or rays, each of which has a longitudinal furrow in its centre, fringed on each side with moveable spines, and orifices for the tubular or retractile feet; mouth central, and placed below, at the union of the grooves.

Asterias rubens.—THE RED STAR-FISH.

Plate XCV. fig. 9.

With five lanceolate, papillous, and spinous rays; papillæ of the back scattered, and set nearly in rows. Inhabits the European seas.

SECTION IV.—CRINOIDÆ.

Genus PENTACRINUS.—*Thompson*.

Generic Character.—Pelvis consisting of five plates, supporting five costals; column not enlarging at the summit; fingers formed of a single series of joints; having a pentagonal column, the articulating surface of the columnar joints petal-shaped. The *Pentacrinus Europeus* inhabits the Cove of Cork.

CLASS XI.—TUNICATA.

Gelatinous or coriaceous biferous animals; with double coats isolated, placed in groups, or adhering together in a common mass.

In assigning a place to this class, we have followed the arrangement of invertebrate animals adopted by Lamarck.

ORDER I.—ASCIDIARIA.

Animals disunited, either isolated or placed in groups, without any internal communication; and not connected in a common mass.

The genera of this order are four, viz.:—

Genus 1.—MAMMARIA.—*Lamarck*.

Generic Character.—With a free, naked, subglobular, or oval body, terminated at the summit by a single opening; destitute of tentacula at the orifice: 2. *Bipapillaria*; 3. *Ascidia*; and 4. *Salpa*.

ORDER II.—BOTRYLLARIA.

Agglomerated animals, always united, and combined in a common mass.

Its genera are, 1. *Pyrasoma*; 2. *Botryllus*; 3. *Polycyclus*; 4. *Polycinum*; 5. *Diagoma*; 6. *Distomus*; 7. *Sigillina*; 8. *Synnoicum*; 9. *Eucoelium*; and

Genus 10.—APLIDIUM.—*Lamarch.*

Generic Character.—Biferous animals very small, living in a common, fleshy, convex body, fixed, and not discovering any particular system ; mouth with six tentacula ; no apparent external anal orifice.

CLASS XII.—ENTOZOA.

Body soft, naked, and elongated ; destitute of a distinct head, eyes, or feet ; mouth formed of one or many suckers ; no tentacula or organs of respiration ; intestinal canal scarcely perceptible in some species.

ORDER I.—ELMINTHOGRAMA.

Worms which usually live on the exterior of aquatic animals, or in the interior parts of others, with a mouth and a vent, and the sexual organs separate ; nervous filaments in some, emerging from near the opening of the œsophagus.

TRIBE I.—ENTOMOIDA.

Worms living on the exterior of aquatic animals, furnished with feet-like appendages for locomotion ; the bodies of the females posteriorly terminated by two ovaries.

Genus PLANARIÆ.—*Basc.*

Generic Character.—Body oblong, depressed, semigelatinous, capable of great contraction, usually simple, sometimes anteriorly provided with two auricular appendages ; belly with two openings.

TRIBE II.—LUMBRICOIDA.

Worms which exist in the interior of the bodies of other animals ; and are devoid of any appendages resembling antennæ or feet.

Genus FILARIA.—*Linnaeus.*

Generic Character.—Body long and round, elastic, and nearly

of equal thickness ; greatly elongated ; mouth orbicular ; simple organs of generation.

Filaria medinensis.—THE GUINEA WORM.

Plate CII. fig. 8.

Animal extremely long ; the head attenuated ; the tail somewhat subulate and inflexed.

Filaria sub-compressa.—THE SUB-COMPRESSED HUMULARIA.

Plate CII. fig. 9. Fig. 10. head of do. magnified.

Oblong, round, compressed on both sides ; dark-brown, and studded with black spots, tapering towards the anterior extremity ; head obtuse, and furnished with two books. Found in the human body.

Genus TRICHOCEPHALUS.—*Rudolphi*.

Generic Character.—Body long, elastic, the anterior part with a capillary, filamentary, elongation, and gradually thickening towards the posterior extremity ; mouth orbicular ; organs of generation simple ; having a sheath in the female.

Trichocephalus dispar.—THE LONG THREAD WORM.

Plate CII. fig. 13. male. Plate CIII. fig. 1. female.

Anterior part small and capillary, terminating in an acute point, in which the mouth is situated ; the posterior part swells out to a considerable size, and in the male is spiral and provided with a funnel-shaped tube. Inhabits the human body.

Genus OXYURUS.—*Bremser*.

Generic Character.—Body long, elastic ; the anterior part of the female subulate ; mouth orbicular ; organs of generation vaginated.

Oxyurus vermicularis.—THE MAW OR THREAD WORM.

Plate CII. fig. 4. male, natural size ; fig. 3. magnified ; fig. 2. female, natural size ; fig. 1. magnified.

Head obtuse, and the body gradually thickening towards the tail ; the female is subulate towards the tail. Inhabits the human body.

Oxyurus angulata.—THE ANGULATED MAW-WORM.

Plate CII. fig. 6. male ; fig. 5. the female ; both the size of nature.

Head obtuse, body thick, tapering from about the middle to the tail ; pale horn colour. Inhabits the human body. Lately discovered by Captain Thomas Brown. Three specimens are in the Museum of Dr Macintosh of Edinburgh.

Genus ASCARIS.—*Linnaeus*.

Generic Character.—Body long, elastic ; attenuated at both extremities.

Ascaris lumbricoides.—THE LONG ROUND WORM.

Plate CII. fig. 7. male.

Cylindrical, tapering to the two extremities, and annulated ; flesh-coloured. From 10 to 15 inches long. Inhabits the human body.

Genus STRONGYLUS.—*Cuvier*.

Generic Character.—Body long ; elastic ; tapering to both extremities ; mouth orbicular, or angulated ; the point of the tail in the male terminated by a funnel-shaped process, in which the organs of generation are situated.

Strongylus gigas.—THE GREAT STRONGYLUS.

Plate CII. fig. 12. natural size ; 11. magnified.

Head obtuse, tapering towards both extremities ; body composed of annular rings. Inhabits the human body. Strongylus found in human urine, Plate CII. 14 and 15.

ORDER II.—ELMINTHAPROCTA.

Worms which inhabit the interior of the bodies of other animals ; with the sexual organs united in each individual ; having no floating alimentary sac ; a simple cavity in the anterior, and almost or totally destitute of nerves.

TRIBE I.—HIRUDIFORMIA.

With distinct sexual organs ; body not inclosed in a cyst, nor

with a bag at its posterior extremity; soft, flattened, and somewhat resembling a leech; provided with suckers, of which one or more of them serve as the mouth.

TRIBE II.—CESTOIDEA.

With sexual organs, or having two ovaries; body elongated, frequently with articulations, but not inclosed in a cyst; mouth consisting of four trunks, surrounding a proboscis-shaped mamilla, or with small spines in some, and hooks in others.

Genus BOTHRIOCEPHALUS.—*Rudolphi*.

Generic Character.—Body greatly elongated, much depressed, and consisting of numerous articulations; head subtrigonal; tail frequently bifurcate; oscula placed in the centre of the articulations on both sides.

Bothriocephalus latus.—THE BROAD TAPE WORM.

Plate CIII. fig. 3.

Articulations of the body broader than long, minutely papillose, with an osculum in the middle of each articulation; the head is small, and the tail frequently bifurcated. From 15 to 20 feet long. Inhabits the human body.

Genus TÆNIA.—*Linnaeus*.

Generic Character.—Body elongated, depressed, and consisting of many articulations, each of which is furnished with an osculum on both sides, in the centre of the edges; the head provided with four sucking oscula.

Tania solium.—THE COMMON TAPE WORM.

Plate CIII. fig. 2.

Mouth terminal, surrounded by two rows of radiate hooks; a little below it is provided with four tuberculate suckers; colour yellowish-white. Sometimes grows to forty feet long. Inhabits the human intestines.

TRIBE III.—CYSTICA.

Animals inclosed in a cyst, sometimes solitary, at others congregated, and not unfrequently in many groups; body generally wholly or posteriorly vascular.

This tribe is known by the name of Hydatids, and inhabit the liver and other parts of the animal system.

Genus ECHINOCOCCUS.—*Rudolphi*.

Generic Character.—Vesicle externally simple or duplex, consisting of a cyst, with several individuals inclosed.

Echinococcus hominis.—THE HUMAN ECHINOCOCCUS.

Plate CII. fig. 16.

Body somewhat round, destitute of organs of vision, and appearing a globular vesicular mass. Inhabits the internal textures of the human body.

CLASS XIII.—ACALEPHA.

With a gelatinous body, circular and radiated, with a soft transparent skin; susceptible of considerable contraction and dilation.

The animals of the class Acalepha are either fixed by their base to some extraneous substance, or float independently in the sea. Their bodies appear to be destitute of muscular fibre, are entirely of a gelatinous consistence, and are susceptible of dilation and contraction.

SECTION I.

Body fixed to other substances.—It contains three genera:

1. Actinia; 2. Zoanthus; 3. Lucernaria.

Genus ACTINIA.—*Lamarch*.

Generic Character.—With a cylindrical, fleshy, very contractile, and simple body; attached by its base, but having the power of removing itself; mouth terminal, margined with from one to numerous rows of radiated tentacula, disappearing when the animal contracts its orifice; resembling a flower in blossom when dilated.

Actinia verrucosa.—THE GREAT ACTINIA.

Plate XCV. fig. 6. ♂

Cylindrical, glandular, red; mouth appendiculated, with projecting tentacula. Inhabits the coasts of Britain.

SECTION II.

Body free and floating.—It contains twenty genera; viz. 4. *Phorcynia*; 5. *Æquorea*; 6. *Pelagia*; 7. *Cyanæa*; 8. *Rhizostoma*; 9. *Cassiopea*; 10. *Geryonia*; 11. *Orythia*; 12. *Berenix*; 13. *Eudora*; 14. *Carybdea*; 15. *Beroe*; 16. *Cestum*; 17. *Diphyes*; 18. *Porpita*; 19. *Velella*; 20. *Physalia*; 21. *Physophora*; 22. *Rhizophyza*; 23. *Stephanomia*.

CLASS XIV.—POLYPI.

The animals are gelatinous, with elongated contractile bodies; and provided with an alimentary sac, which has one opening; mouth terminal, surrounded by radiated tentacula; the greater number of the species congregated, adherent, and forming compound animals.

ORDER I.—POLYPI NATANTES.

The animals united in a common body, free, elongated, fleshy, enveloping an inorganic axis, which is either cartilaginous, osseous, or stony; and provided with radiated tentacula around the aperture of each polypus.—This order contains six genera: 1. *Umbellularia*; 2. *Virgularia*; 3. *Renilla*; 4. *Pennatula*; 5. *Funiculina*; and, 6. *Veretillum*.

Genus 1.—UMBELLULARIA.—*Lamarck*.

Generic Character.—Body a long simple stem, and free, having a bony inarticulate axis, enveloped by a fleshy membrane; the polypi are united in an umbellate form, and of large size, with eight ciliated tentacula.

Umbellularia Greenlandica.—THE GREENLAND UMBELLULARIA.

Plate CIV. fig. 1.

Stem long, attenuated above, the polypi congregated in an umbel at the apex. Inhabits the Northern ocean.

Genus 4.—PENNATULA.—*Lamarck*.

Generic Character.—With a free, fleshy, penniform body; having a stem inferiorly naked, winged above, and embracing a cartilaginous or osseous axis; with distichous, open, depressed, and plicated pinnulae, polypiferous in their upper margin; the polypi having radiated tentacula.

Pennatula phosphorea.—THE PHOSPHORIC PENNATULA, OR SEA PEN.

Plate CIV. fig. 9.

With a fleshy, long, round stem, papillous beneath, and scabrous; the marginal pinnæ pectinated; of a fine pink colour. Inhabits the British seas.

ORDER II.—POLYPI TUBIFERI.

The animals united in a common fleshy body, either simple, lobed, or with ramifications, and constantly fixed by their base; without any solid internal axis; surface entirely or partly covered with tubiform cylinders, rarely retractile; mouth terminal, with eight pectinated tentacula.—It consists of five genera; viz. 1. Lobularia; 2. Cliona; 3. Ammothea; 4. Xenia; and, 5. Anthelia.

Genus 1.—LOBULARIA.—*Lamarck*.

Generic Character.—Having a common fleshy body, elevated upon the base, and rarely supported by a short stem, which is either simple or provided with lobes; surface closely beset with polypi, which are quite retractile, cylindrical, and having eight grooves outside, and eight pectinated tentacula.

Lobularia digitata.—THE FINGERED LOBULARIA.

Plate CIV. fig. 2.

Sessile, pale rusty, gelatinous and fleshy; the lobe from two to five inches thick, and obtuse. Inhabits the European seas.

ORDER III.—POLYPI VAGINATI.

Each individual polypus provided with tentacula, constantly fixed in an inorganic body, which invests them, and forming a general compound of animals.

SECTION I.

The polypiferous masses are composed of two distinct and separate substances: first, of many horny fibres, either in fasciculi, radiate, interlaced, or reticulated; and secondly, of a fleshy or gelatinous pulpy substance, which either covers, envelopes, or renders the fibres adherent: when dry, becomes of different degrees of consistency.—Its genera are, 1. *Alcyonium*; 2. *Geodia*; 3. *Tethia*; and,

Genus 4.—SPONGIA.—*Lamarck*.

Generic Character.—A polypiferous mass, adherent, soft and gelatinous, tenacious, and extremely flexible; the cartilaginous substance supported by calcareous or siliceous spiculæ; pores very numerous and irregular.

Spongia palmata.—THE PALMATED SPONGE.

Plate CIV. fig. 4.

Erect, compressed and very porous, with palmated digitiform branches; and a subacute furcated apex. Inhabits the European seas.

Genus 5.—FLABELLARIA.—*Lamarck*.

Generic Character.—With a fan-shaped, caulescent, incrustated polypiferous mass, frequently divided, and having flattened expansions, subarticulate and proliferous; with a short thickish cylindrical stem; tissue consisting of interlaced fibres; articulations somewhat kidney-shaped, broader than long; with the superior margin rounded and sinuous.

Flabellaria pavonia.—THE PEACOCK FLABELLARIA.

Plate CIV. fig. 3.

With a simple incrusted stem and agglutinated branches ; surmounted by a flabelliform, calcareous, undulated, sublobed leaf. Inhabits the American seas.

SECTION II.

With the polypiferous masses branching like plants, and composed of two different substances, namely, a central and solid axis, and fleshy incrustation, covering and containing the polypi ; and an inorganic corneous or stony axis ; the polypiferous crust porous, cellular, and friable when dried.

Genus 7.—CORALLINA.—*Lamarch*.

Generic Character.—Polypiferous mass attached, greatly branched, having a central axis, which is filiform, inarticulate, cartilaginous, solid or horny ; incrustaceous, calcareous, thick, its surface united without visible cells, and interrupted as if longitudinally jointed ; polypi unknown.

* Dichotomous, having short joints, frequently compressed and dilated above.

Corallina officinalis.—THE CORALLINA OF THE SHOP.

Plate CIV. fig. 5.

Branches pinnated ; joints of the stem and branches cuneiform and compressed. Inhabits the coasts of Europe.

** Capillary, subdichotomous, and having cylindrical joints.

Corallina squamata.—THE SCALY CORALLINA.

Plate CIV. fig. 6. natural size ; fig. 7. a branch magnified.

With pinnated branches and dilated above ; joints and stems wedge-shaped, compressed, the last one depressed ; margin acute. Inhabits the coasts of England.

*** Branched, dichotomous, or verticillate, having elongated, separated joints, which expose the corneous axis.

Corallina cylindrica.—THE CYLINDRICAL CORALLINA.

Plate CIV. fig. 8.

White, slender and greatly branched, joints cylindrical and subequal. Inhabits the American coasts.

Genus 8.—GORGONIA.—*Linnaeus*.

Generic Character.—Polypiferous mass fixed, branching and composed of a central axis and outer bark; adhering at the base, caulescent, branched and substriated externally, horny, solid and flexible; the axis and branches covered by a fleshy crust; and containing polypi in its recent state; when dried becomes spongy, porous, and covered by superficial or projecting cells.

* With superficial cells, appearing like projecting granules, or tubercles.

Gorgonia verriculata.—THE WARTED GORGONIA.

Plate CIV. fig. 11.

Very large, branched, and fan-shaped; ramuli divaricate, and joined at the reticulation; crust white, with scattered warty pores. Inhabits the Indian seas.

** With cylindrical or turbinated cells projecting greatly.

Gorgonia lepadifera.—THE STONY GORGONIA.

Plate CIV. fig. 12.

Branched with squamose, clustered, reflexed, and companulate papillæ. Inhabits the North seas.

Genus 9.—ANTIPATHES.—*Lamarch*.

Generic Character.—With a branched and fixed polypiferous mass, composed of an outer crust and central axis, the latter with a foot, and fixed by its base, caulescent, branched, simple or corneous, solid, flexible, and generally spinous; with a polypiferous gelatinous crust, which covers the axis and branches in a living state, but disappearing when removed from the water.

Antipathes spiralis.—THE SPIRAL ANTIPATHIES.

Plate CIV. fig. 10.

Sub-spiral, simple, and scabrous. Inhabits the Indian ocean.

Genus 10.—ISIS.—*Lamarck*.

Generic Character.—Fixed, formed like a tree, with a jointed axis, and an exterior crust; central axis branched, with stony striated articulations, and horny between the joints; crust containing polypi in the recent state, which disappear when removed from the water.

Isis hippuris.—THE HORSE-TAIL ISIS.

Plate CIV. fig. 13.

Somewhat branched, with a smooth, thick, many-osculated crust; joints of the axis stony, sulcated, irregular, and the last compressed; intervals horny. Inhabits the Indian ocean.

Genus 12.—CORALLIUM.—*Lamarck*.

Generic Character.—Fixed, branched and stiff, but not articulated; with a caulescent, branching, stony, solid axis; striated on the surface; with a soft and fleshy crust, containing polypi while recent, but when dried, becomes thick, porous, and of a reddish colour; the mouth of the polypi furnished with eight ciliated and radiated tentacula.

Corallium rubrum.—THE RED CORALLIUM.

Plate CIV. fig. 14.

Bright carnation red. Inhabits the Mediterranean and Indian seas.

SECTION III.

With stony polypiferous masses, and stelliform lamellæ or waved laminar furrows.

Genus 13.—OCULINA.—*Lamarck*.

Generic Character.—With a stony polypiferous mass, generally branching and fixed; the branches smooth, thick and short; stelliform mouths in some terminal, the others lateral and superficial.

Oculina virginea.—THE VIRGIN OCULINA.

Plate CIV. fig. 15.

Greatly branched, and tortuous ; stars scattered, immersed, or prominent, and formed by lamellæ. Inhabits the Indian seas.

Genus 14.—SERIATOPORA.—*Lamarck*.

Generic Character.—Fixed, stony, and in slender, subcylindrical branches ; cells perforated, lamellar, margin appearing ciliated, and arranged in a lateral or longitudinal series.

Seriatopora subulata.—THE SUBULATE SERIATOPORA.

Plate CIV. fig. 18.

Diffuse, with many slender branches ; stars in a longitudinal series.

Genus 15.—MADREPORA.—*Lamarck*.

Generic Character.—Fixed, somewhat dendritic, and branching ; the surface exhibiting on all sides projecting scattered cells, which are distinct, cylindrical, tubular, scarcely stelliferous ; interstices porous ; with narrow laminæ.

Madrepora simplex.—THE SIMPLE MADREPORE.

Plate CIV. fig. 21.

Greatly depressed, and mushroom-shaped. Inhabits the Indian ocean.

Genus 17.—PORITES. *Lamarck*.

Generic Character.—Stony, branched, or lobed and obtuse, fixed at the base ; surface stelliferous ; stars regular, somewhat contiguous, superficial or excavated, with either imperfect margins or none ; filamentous laminæ sharp and pointed.

Porites clavaria.—THE CLUB-SHAPED PORITES.

Plate CIV. fig. 22.

Subclavate, and obtusely compressed ; stellæ broad, flat, and contiguous. Inhabits the American seas.

Genus 18.—ASTREA.—*Lamarck*.

Generic Character.—Fixed, stony, and incrusting marine substances, forming hemispherical or globular masses, which are

rarely lobed ; upper surface crowded with orbicular or subangular lamellar, or sessile stars.

* With the stars separated from the base.

Astrea radiata.—THE RAYED ASTREA.

Plate CIV. fig. 16.

Stars orbicular ; interstices sulcated. Inhabits the American seas.

** With contiguous stars.

Astrea denticulata.—THE TOOTHED ASTREA.

Plate CIV. fig. 17.

Stars unequal, cells contiguous. Inhabits the Indian ocean.

Genus 19.—EXPLANARIA.—*Lamarch*.

Generic Character.—Stony, fixed, exhibiting a free foliaceous membrane ; waved and sublobate, with one of its surfaces stelliferous ; stars scattered, sessile, separated at different degrees of distance.

Explanaria rosularia.—THE ROSULARIA EXPLANARIA.

Plate ~~CIV~~^{CV}. fig. 3.

Depressed, foliaceous, and suborbicular. Inhabits the Australian seas.

Genus 22.—MEANDRINA.—*Lamarch*.

Generic Character.—Stony and fixed, disposed in a simple, convex, or hemispherical mass, with a convex surface, divided by hollow sinuous compartments, which are provided on each side with transverse parallel plates, which are attached to the raised crests.

Meandrina labyrinthica.—THE LABYRINTH MADREPORE.

Plate CIV. fig. 19.

Hemispherical ; undulations long and tortuous ; base dilated ; meniscus simple and subacute. Inhabits the American seas.

Genus 23.—AGARICIA.—Lamarck.

Generic Character.—Stony and fixed, with depressed, somewhat foliaceous expansions, one surface having furrowed or starry wrinkles; the stars lamellar, sessile, frequently imperfect and indistinct.

Agaricia ampliata.—THE INCREASING AGARICIA.

Plate CIV. fig. 23.

Fan-shaped, and foliaceous; longitudinally rugose; stars few and imperfect.

Genus 24.—PAVONIA.—Lamarck.

Generic Character.—Frondescent, fixed, stony, with somewhat straight or ascending foliaceous lobes; with the two surfaces grooved, or with starry wrinkles; stars lamellar, sessile, and somewhat imperfect.

Pavonia agaricites.—THE MUSHROOM PAVONIA.

Plate CIV. fig. 20.

Undulations stelliferous, transversely flexuous and acute. Inhabits the American seas.

Genus 25.—FUNGIA.—Lamarck.

Generic Character.—Free, stony, simple, in orbicular or oblong convex masses; lamellar above, with an oblong groove in the centre; concave and unequal beneath; upper surface with one subproliferous star; the laminæ laterally spinous, or toothed.

Fungia agariciformis.—THE MUSHROOM-SHAPED FUNGIA.

Plate CV. fig. 2.

Orbicular, subdepressed, and scabrous beneath; with convex stars, and unequal denticulated laminæ, longitudinally radiate. Inhabits the Red Sea.

Genus 28.—CARYOPHYLLIA.—Lamarck.

Generic Character.—With a stony, polypterous, simple, or branched mass, the branches and stems somewhat turbinate, and longitudinally striate, each terminated by a lamellar, star-shaped cell.

Caryophyllia cyathus.—THE MEASURE CARYOPHYLLIA.

Plate CV. fig. 5.

Turbinate club-shaped, or a solitary stem ; star concave, with a papillose centre.

SECTION IV.

With a solid stony polypiferous mass, which is interiorly compact ; with perforated or tubular cells, and destitute of laminae.

Genus 31.—TUBIPORA.—*Linnaeus*.

Generic Character.—Stony, and composed of cylindrical tubes, straight, parallel, which are separated individually, but connected by external transverse partitions ; tubes articulated, and communicating by radiating and porous divisions.

Tubipora musica.—THE MUSIC TUBIPORA.

Plate CV. fig. 10.

Having distinct cylindrical tubes, and distant partitions ; of a bright scarlet. Inhabits the Indian ocean.

Genus 32.—MILLIPORA.—*Lamarck*.

Generic Character.—Interiorly solid, stony, polymorphous, branched, or frondescent, provided with simple, cylindrical, small, and sometimes scarcely apparent pores, which are perpendicular to the axis, or to the expansions of the polypiferous mass.

Millipora informis.—THE SHAPELESS MILLIPORA.

Plate CV. fig. 11.

Irregular and solid ; branches thick and nodose.

SECTION V.

With sub-stony polypiferous masses, and crustaceous or frondescent expansions ; having small shallow cells, sometimes set in a series, and sometimes irregular ; and generally placed at the surface of the expansions upon marine substances.

Genus 42.—RETEPORA.—*Lamarck*.

Generic Character.—Stony, and interiorly porous, with thin,

depressed, branched expansions, sometimes free, at others formed like net-work ; the polypiferous cells on one side only, at the upper or internal surface of the mass.

Retepora cellulosa.—THE CELLULAR RETEPIORA.

Plate CV. fig. 1.

Flattened, thin, greatly undulated ; with elliptic cells. Inhabits the Indian ocean.

Genus 44.—ESCHARA.—*Lamarck*.

Generic Character.—Nearly stony, and not flexible, with depressed lamellary fragile expansions, extremely porous interiorly, entire or divided ; cells of the polypi arranged in fives on both sides.

Eschara foliacea.—THE FOLIATED ESCHARA.

Plate CV. fig. 4.

With numerous, flexuous, coalescing laminæ ; pores small, round, and separate. Inhabits the European seas.

Genus 47.—TUBULIPORA.—*Lamarck*.

Generic Character.—A parasitical or incrusting mass, provided with submembranous cells, disposed in clusters, or set in a series, and free for the most part ; the cells elongated, regular in their shape, and tubular, with an orbicular aperture, and rarely toothed.

Tubulipora transversa.—THE TRANSVERSE TUBULIPORA.

Plate CV. fig 25.

White within ; tubular cells disposed in transverse rows, united at their base. Inhabits the Mediterranean sea.

Genus 48.—FLUSTRA.—*Linnaeus*.

Generic Character.—Somewhat stony, submembranaceous, and flexible, frondescent, on a thin crust, consisting of contiguous cells, set in many regular series, on one or both surfaces ; cells sessile, short, oblique, with a terminal, irregular, frequently dentated, or ciliated margin.

Flustra carbasea.—THE COALY FLUSTRA.

Plate CV. fig. 22.

Foliaceous, with wedge-shaped, linear, obtuse lobes. Inhabits the Frith of Forth.

SECTION VI.

With polypiferous masses consisting of one substance only; the stems fistulous, membranaceous, flexible, horny, and branching, containing polypi, in their interior.

Genus 52.—DICHOTOMARIA.—*Lamarck*.

Generic Character.—With a tubular, subarticulate, polypiferous mass, with dichotomous stems and a calcareous crust; cells of the polypi not distinguishable.

Dichotomaria obtusata.—THE OBTUSE DICHOTOMARIA.

Plate CV. fig. 24.

Branching, with oblong-ovate joints, and compressed in a dry state. Inhabits the Bahama Islands.

Genus 53.—ANGUINARIA.—*Lamarck*.

Generic Character.—Arborescent, climbing, slender, and fistulous; cells remote, straight, filiform, tubular, and slightly clavate, or spatuliform, with the apertures placed laterally under the summit.

Anguinaria spatulata.—THE SPOON-SHAPED ANGUINARIA.

Plate CV. fig. 23.

With spatuliform cells, placed on an upright stem. Inhabits the European seas.

Genus 54.—CELLARIA.—*Lamarck*.

Generic Character.—Stems horny, subarticulate, tubular, branched and shining; cells in a series, either linked together or adnate, or incrustated at the surface.

Cellaria salicornia.—THE SALICORN CELLARIA.

Plate CV. fig. 20. natural size; 21. magnified.

Joints cylindrical; cells rhomboidal. Inhabits the seas of Europe.

Genus 55.—LIRIOZOA.—*Lamarck.*

Generic Character.—Calcareous and branched; with tubular jointed creeping stems; cells oblong, pedicellate, set in clusters of three, with opposite clusters at the top of the joints.

Liriozoa Caribæa.—THE CARRIBÆAN LIRIOZOA.

Plate CV. fig. 18. size of nature; 19. magnified.

Cells in opposite clusters, terminal. Inhabits the West Indian seas.

Genus 56.—SERIALARIA.—*Lamarck.*

Generic Character.—With horny, slender, fistulous, branched arms, provided with cylindrical projecting cells, parallel, cohering in a series, in masses or in a spiral continuous form.

Serialaria lendigera.—THE LENDIGERA SERIALARIA.

: Plate CV. fig. 8. size of nature; 9. magnified.

With filiform, jointed branches; and the cells in distinct rows. Inhabits the seas of Europe.

Genus 57.—PLUMULARIA.—*Lamarck.*

Generic Character.—With slender, fistulous, branched horny stalks, provided with calyciferous ramuli; having subaxillary, dentiform, prominent and sessile cells; and subpedunculate vesicles.

Plumularia cristata.—THE CRESTED PLUMULARIA.

Plate CV. fig. 6. size of nature; 7. magnified.

Loosely branched; cells companulate and sessile; with crested vesicles. Inhabits the seas of Europe.

Genus 59.—SERTULARIA.—*Linnaeus.*

Generic Character.—Horny, with simple, branched, slender, fistulous stems, which with the branches are provided with separate, lateral dentiform cells, which are projecting and sessile, or subpedunculated; either scattered or arranged in two opposite rows; vesicles larger than the cells.

Sertularia cupressina.—THE CYPRESS SERTULARIA.

Plate CV. fig. 14. size of nature; 15. magnified.

Compound and elongated branches; cells cylindrical, and obliquely truncated; vesicles sub-ovate, with a sub-tubular orifice. Inhabits the seas of Europe.

Genus 60.—CAMPANULARIA.—*Lamarck*.

Generic Character.—With fistulous, filiform, horny, simple, or branched stems; with campanulate cells, dentated on the margin, supported on long somewhat spirally twisted foot-stalks.

Campanularia dichotoma.—THE DICHOTOMOUS CAMPANULARIA.

Plate CV. fig. 16. size of nature; 17. magnified.

Stem filiform; cells bell-shaped and terminal. Inhabits the seas of Europe.

Genus 62.—TUBULARIA.—*Lamarck*.

Generic Character.—With a slender, tubular, simple, or branched horny polypiferous mass, fixed by its base; the extremities of the stem and branches each terminated by a polypus; mouth of the polypi provided with two rows of naked tentacula, which are not retractile, and have a vorex at their origin.

Tubularia ramosa.—THE BRANCHED TUBULARIA.

Plate CV. fig. 12. size of nature; 13. magnified.

Tubular, branched, with the axillæ of the branches twisted. Inhabits the British seas.

The remaining genera of this order which we have not described, are, 6. *Penicillus*; 11. *Melitæa*; 16. *Pocillopora*; 20. *Echinopora*; 21. *Monticularia*; 26. *Cyclolites*; 27. *Turbinolia*; 29. *Sarcinula*; 30. *Stylina*; 32. *Catenipora*; 33. *Favosites*; 35. *Distichopora*; 36. *Orbulites*; 37. *Lunulites*; 38. *Ovulites*; 39. *Dactylopora*; 40. *Ocellaria*; 41. *Alveolites*; 43. *Adeona*; 45. *Cellepora*; 46. *Discopora*; 49. *Polyphysa*; 50. *Acetabulum*; 51. *Tibiana*; 58. *Antennularia*; 61. *Cornularia*; 63. *Plumatella*.

SECTION VII.

With polypiferous masses either free, isolated, floating in

water, or fixed and congregated in cellular masses, composed of one substance, or aquatic substances ; polypi provided with numerous tentacula, but not entirely encircling the mouth.—The genera are, 64. Alcyonella ; 65. Spongilla ; 66. Cristatella ; 67. Diffugia.

ORDER IV.—POLYPI DENUDATI.

Polypi provided with tentaculi, and not congregated in a polypiferous mass ; greatly diversified in form, as well as in the number and situation of their tentacula ; and either constantly or spontaneously fixed.—The genera of the order are, 1. Pedicellaria ; 2. Coryne ; and,

Genus 3.—HYDRA.—Lamarck.

Generic Character.—With an oblong, linear body, or in the form of a reversed cone, narrowed below ; gelatinous, transparent, and fixed spontaneously by the base ; having a terminal mouth, and a row of cirrous tentacula. All the species inhabit fresh water.

ORDER V.—POLYPI CILIATI.

Mouth provided with ciliated and gyratory organs, which agitate the water, but not fitted for seizing their food.

SECTION I.—ROTIFERI.

Having one or many organs in a circular form, ciliated and rotatory at the orifice of the mouth.—The genera are, 1. Tubicolarea ; 2. Vorticella ; 3. Urceolaria ; 4. Furcularia ; 5. Brachionus ; and,

Genus 6.—FOLLICULINA.—Lamarck.

Generic Character.—With a contractile oblong body, enveloped in a transparent sheath ; mouth terminal and large, provided with ciliated rotatory organs. Inhabits the ocean.

SECTION II.—VIBRATILES.

With the ciliæ near the mouth moving in interrupted vibrations.—The genera are, 7. *Vaginicola*; 8. *Trichocerca*; and, 9. *Rattulus*.

CLASS XV.—INFUSORIA.

Microscopic, gelatinous, transparent, polymorphous, and contractile animals; without any distinct mouth, or constant, determinable, interior organ; generation supposed fissiparous or gemmiparous.

These animals exist in the infusions of various plants in water, in a state of putrefaction. Their organization, as far as has yet been ascertained, justly entitles them to rank at the termination of the scale of animal existence. They are so minute, that they cannot be discovered without the aid of a powerful lens.

Lamarck has divided this class into two orders:—I. INFUSORIA APPENDICULATA; and, II. INFUSORIA NUDA, or naked infusory animals.

ORDER I.—INFUSORIA APPENDICULATA.

With projections at the exterior of the body, such as hairs; a sort of horns or a tail.—The genera of this order are, 1. *Furcocerca*; 2. *Cercaria*; 3. *Kerona*; and,

Genus 4.—TRICHODA.—*Lamarck*.

Generic Character.—With a very small, transparent, diversiform body, without any particular tail, and provided with soft hair over all, or part of the surface.

ORDER II.—INFUSORIA NUDA.

Body extremely simple, devoid of organs or exterior appendages, and appearing homogeneous.

SECTION I.

With a membranaceous body, nearly without thickness, depressed, or concave.—Its genera are, 1. Bursaria ; 2. Kolpoda ; 3. Paramecium ; 4. Cyclidium ; and, 5. Gonium.

SECTION II.

The body of perceptible thickness.—Its genera are, 6. Vibrio ; 7. Enchelis ; 8. Proteus ; 9. Volvox ; and,

Genus 10.—MONAS.—Lamarck.

Generic Character.—With an extremely minute, simple, transparent body, in the form of a point.

GLOSSARY

OF TERMS USED IN DESCRIBING THE ANIMAL KINGDOM.

- Abbreviated, shortened, cut short
 Abdomen, the belly
 Acuminated, ending in a sharp point, sharp pointed
 Aculeated, furnished with prickles
 Adnate, adhering or growing together
 Alate, winged
 Alimentary, serving as food, belonging to food
 Annulated, ringed
 Annular, consisting of rings
 Annulation, a ring
 Anomalous, irregular, deviating from the general analogy of things
 Antennæ, two slender bodies placed on the heads of insects and other animals
 Antiquated, (in conchology) longitudinally furrowed, but interrupted by transverse furrows as if the shell had acquired new growth at each furrow.
 Apophysis, an excrescence
 Approximate, approaching, near to
 Arcuated, bent in the form of an arch
 Arenose, sandy
 Areola, a small area or circle
 Alternating, returning at certain intervals
 Articulations, junctures or joinings
 Attenuated, thin, slender
 Auriform, ear-shaped
 Aurated, eared
 Aurelia, a pupa, the third state of an insect
 Azote, Nitrogen gas
- Barbed, bearded, any thing growing in place of a beard
 Beak, the bill of a bird, the nib
 Bizantler, the second branch of a stag's horn
 Bi, prefixed to any word signifies two
 Bilingual, having two corners or angles
 Bidentate, having two points
 Bidentate, two-toothed, or double toothed
 Bifid, cleft, opening with a cleft
 Bifarious, parting in opposite directions
- Bifurcate, divided into two branches
 Bilobate, divided into two lobes
 Bimarginate, double margined
 Biradial, two-rayed
 Bisulcate, two-furrowed
 Branchiæ, gills of fishes and reptiles
 Bullate, of a blistered appearance
 Burr, a round knob of horn next the deer's head
 Byssus, a beard, common in muscles, pinnæ, &c.
- Callosity, a protuberance
 Campanulate, bell-shaped
 Canaliculated, formed like a pipe or gutter
 Cancellated, ribbed in a transverse manner
 Canine teeth, the sharp pointed teeth, on each side of the four cutting central teeth of animals
 Carbon, pure basis of charcoal
 Carina, a keel
 Carinated, keeled
 Carnivorous, flesh-eating, that of which flesh is the proper food
 Cartilage, gristle
 Cartilaginous, consisting of cartilages, of the nature of cartilage
 Caudate, tailed
 Cere, a skin which covers the base of the bills of some birds
 Channelled, hollowed out, grooved
 Cheek teeth, the grinders
 Chyle, the white juice formed in the stomach, by digestion of the aliment, and afterwards converted into blood
 Cicatrix, a scar
 Ciliated, edged with parallel hairs, bristles, or appendages, like the eyelids
 Cinereous, ash-coloured, of the colour of wood ashes
 Cirrous, like a tendril
 CLASS, a division of the animal kingdom.
 Clavate, club-shaped
 Claviform, of the form of a club
 Clavicle, the collar bone
 Cocoon, the nest which caterpillars

- spin for themselves, before their transformation into the pupa state
 Commissure, a joint, or seam
 Compressed, perpendicularly squeezed together, in opposition to depressed, which is horizontally flattened
 Concamerated, divided into compartments
 Condyle, a knot in any of the joints formed by the epiphysis of a bone
 Confluent, running together
 Conoid, in the figure of a cone, sugar-loaf-shaped
 Contorted, twisted
 Convergent, or Converging, approximating
 Convoluted, rolled upon itself, twisted spirally, like a piece of paper rolled between the finger and the thumb
 Cordiform, heart-shaped
 Coriaceous, of a leather-like consistence
 Corneous, horny
 Coronal, relating to the crown or top
 Coronated, crowned, or girt towards the apex
 Crenulated, notched at the margins, scalloped
 Crinated, hairy
 Crispated, rough with waving lines
 Crustaceous, consisting of a crust composed of phosphate of lime, and animal matter
 Cuneated, wedged
 Cuneiform, shaped like a wedge
 Cylindrical, round like a cylinder or roller
 Cymbiform, boat-shaped
- Deciduous, falling off
 Decorticated, worn, as if rubbed, divested of epidermis or skin
 Decussated, applied to striæ or lines which are crossed, or intersect each other perpendicularly and horizontally
 Deflexed, bent aside
 Dentary, of or belonging to the teeth
 Dentile, belonging to the teeth
 Denticles, small teeth
 Denticulated, toothed
 Dentition, the teeth as a body
 Depressed, pressed down horizontally, low, shallow, flat
 Dewlaps, pieces of flesh, which hang pendulous from the bottom of the throats of horned cattle, deer, &c.
 Diaphanous, transparent, clear, pellucid
 Digitated, fingered or clawed
 Disk, the round face of any object
 Distichous, in double rows
 Diurnal, of, or belonging to the day
 Divaricated, straddling, spreading out widely
 Divergent, tending to various parts, or directions from one point
 Dolabiform, axe-shaped
 Dorsal, relating to the back
- Duplicated, divided into two plaits or folds
 Duplicature, a fold, any thing doubled
- Echinated, bristled like a hog, set with spines
 Effuse, spread out
 Elliptical, having the form of an ellipsis, oval
 Elongated, lengthened, drawn out
 Elytra, hard membranous substances covering the wings of various insects, such as beetles, &c.
 Emarginate, } with the margin
 Emarginated, } notched
 Ensiform, sabre shaped
 Entire, uninterrupted, not divided
 Epidermis, the outer or scarf skin
 Equilateral, having both sides alike
 Equivalve, having both valves of equal dimensions
 Exoete, worn or faded
 Exserted, standing out, protruding
 Extensible, capable of being stretched out
 Extraneous, not belonging to a particular thing
 Exude, to issue out
- Falcated, bent or hooked like a scythe
 Farina, a fine mealy or scaly substance covering the wings of insects
 Fasciated, filleted or covered with bands
 Fasciculated, consisting of little bundles
 Ferruginous, of a rusty colour
 Filament, a small thread
 Filamentary, thready
 Filiform, shaped like a thread
 Fimbria, fringe
 Fimbriated, fringed
 Fissure, a cleft, a little slit, a narrow chasm
 Flexuous, zigzag, with angles gently winding
 Flexure, a bending
 Fluvialite, of or belonging to fresh water
 Foliaceous, consisting of laminae or leaves
 Foliated, leaved
 Formula, a model
 Fossa, an excavation
 Furcated, forked
 Furrowed, consisting of small trenches or hollows
 Fuscous, of a dusky brown colour
 Fusiform, spindle-shaped, intermediate between conical and oval
- Gelatin, viscous, stiff, cohesive matter, a jelly extracted from animal substances by solution in water but not in alcohol
 Gelatinous, consisting of gelatin

Genera, the plural of genus
 Generic character, the marks which are peculiar to a genus
 Geniculate, kneed
 Genus, the third division into which the animal kingdom is divided, or those into which an order is divided
 Gibbous, bulged or bulging
 Glabrous, smooth, having a smooth surface
 Glandular, pertaining to the glands, having the nature of glands
 Granulated, beaded, in small grains or beads
 Graduated, in regular progression, by succession of degrees
 Grinders, the teeth of quadrupeds, inside of the canines

Hallux, the hind toe of birds
 Haustellum, a trunk at the mouth of an insect
 Hemispherical, in the shape of a half globe
 Heteroclitical, synonymous with heterostrophe
 Heterostrophe, reversed, applied to any thing of a form reversed from the ordinary forms of things
 Hirsute, rough, beset with strong hairs
 Hispid, hairy
 Hydrogen, inflammable gas

Imbricated, placed like the tiles of a roof
 Imperforated, not pierced with a hole
 Inarticulate, not jointed
 Incisive, cutting
 Incisors, the incisory teeth
 Incisory teeth, the four front cutting teeth in the upper and under jaws of quadrupeds
 Incumbent, one lying over the other
 Incurved, } bent inwards, crooked
 Incurvated, }
 Indented, unequally marked, hollowed
 Inequilateral, with unequal sides, when the anterior and posterior sides make different angles with the hinge
 Inequivalve, where one valve is more convex or larger than the other
 Inflated, turned and swollen as if blown up
 Inflected, bent inwards
 Inflexed, bent towards each other
 Inguinal, relating to the groin
 Interarticular, placed between the ribs
 Intervallum, the space between one knot or joint and another
 Intervened, divided, separated
 Intervallum, relating to the bowels
 Intervallum, space between one part and another, a crevice
 Intortion, the turning or twisting in any particular direction
 Involute, a covern

Involute, where the exterior lip is turned inwards at the margin, as in the Cypræa
 Isabella-colour, a brownish yellow with a shade of brownish red
 Irides, the coloured circle of the eyes which surrounds the pupil
 Iridescent, shining, with changeable colours
 Jagged, denticulated, toothed like a saw
 Juncture, the joining of the whorls in univalve shells

Keel, the longitudinal prominences in the genus Argonauta, and high ridges on the upper mandibles of birds
 Knob, a protuberance, any part raised bluntly above the rest

Lactiferous, producing milk
 Lacerators, the canine teeth are so called
 Lachrymal, of or belonging to tears
 Lacinate, jagged or cut into irregular segments
 Lacunose, having the surface covered with small pits
 Lacteals, vessels in the stomach that convey the chyle
 Lamellar, consisting of films or plates
 Lamellated, divided into distinct plates or foliations
 Laminæ, thin plates, laid one coat above another
 Lanceolate, oblong, and gradually tapering like the head of a lance
 Larva, a caterpillar, the state of an insect after it emerges from the egg
 Lateral, extending to the sides from the centre
 Latticed, having longitudinal lines or furrows, decussated by transverse ones
 Lenticulate, doubly convex, of the form of a lens
 Ligament, a solid body, softer than a cartilage, but harder than a membrane, which fastens the bones and articulates them together for motion; in bivalve shells the substance which connects the valves
 Limb, the margin of bivalve shells
 Linear, composed of lines
 Lip, the outer edge of the aperture of bivalves
 Littoral, of or belonging to the shore
 Lobated, rounded at the edges
 Longitudinal, the length, lengthened
 Lubricity, slipperiness, smoothness of surface
 Lunated, formed like a half moon
 Lunulated, crescent-shaped
 Lunule, a crescent-shaped mark, situated near the anterior and posterior slopes of bivalve shells
 Luniform, form of a crescent

- Mammæ, the breasts or paps of animals
 Mammalia, animals which suckle their young
 Mammiferous, suckling animals
 Mandibles, the upper and under chaps of a bird's bill
 Marginated, having a prominent margin or border
 Membranaceous, consisting of membranes
 Membrane, the web, which connects the toes of birds, &c.
 Molar-teeth, the grinders, those within the canine teeth
 Monodactylous, one-toed
 Moniliform, collar-shaped
 Mucronate, ending in a sharp rigid point
 Multilocular, many-chambered, consisting of several divisions
 Muricated, covered with sharp spines
 Muzzle, the lengthened snout of an animal,
 Nacred, pearly, pearlaceous
 Nasal, relating to the nose
 Nemoral, of, or belonging to a wood
 Nitid, glossy
 Nocturnal, belonging to the night
 Nodose, knotty
 Nodulous, beset with knots
 Nuchal-bristles, small bristly hairs situated at the base of the bills of some birds
 Nucleus, a kernal
 Ob, prefixed to words, is used for inversely or inverted, as *obconic*, inversely conic: *obcordate*, inversely heart-shaped
 Oblong, ovate, egg-shaped or oval
 Obsolete, indistinct, not well defined
 Ocellated, applied to eye-like spots
 Ochreous, of the colour of yellow ochre
 Offuscated, darkened, clouded, dimmed.
 Olivaceous, of a greenish olive colour
 Operculated, having a lid
 Operculum, a lid, by which some of the univalve and multivalve shells are closed
 Ophthalmic, relating to the eye
 Orbicular, spherical, circular, round.
 Order, the second division of the animal kingdom, orders are made up of a plurality of genera
 Orifice, an opening or perforation,
 Osseous, of a bony substance
 Ovate, shaped like the longitudinal section of an egg
 Ovipositor, an instrument by which insects deposit their eggs
 Ovoid, oval
 Oxygen, a constituent and essential portion of the atmosphere
 Palmated, webbed, as in the feet of some water birds
 Papillæ, small dots or pimples
 Papillose, pimpled, dotted
 Papillary, { resembling dots or pimples
 Papillous, {
 Papyraceous, thin as paper
 Parasitical, living on some other body
 Parallelogramical, having the shape of a parallelogram or a right lined quadrilateral figure, whose opposite sides are parallel and equal
 Partitions, calcareous processes dividing the inside of shells of the genus *nautilus*, *serpula*, &c.
 Patulous, spreading
 Pearlaceous, of, or like mother of pearl
 Pectinated, resembling the teeth of a comb
 Pectoral, relating to the breast
 Pedicle, a little stalk, on which any thing is seated
 Pediform, foot-shaped
 Peduncle, a foot stalk, or a tube on which any thing is seated
 Pelagic, belonging to the deep sea
 Pellicle, a skin or film
 Pellucid, transparent, clear, bright
 Pencilled, having long tufts of hair like a pencil
 Pentagonal, having five angles
 Pentadactylous, having five fingers
 Pennit, last but one
 Perfoliated, where the base entirely surrounds the stem transversely
 Perforated, pierced with holes
 Petiolate, placed on a footstalk
 Phalanges, the joints of the fingers and toes
 Phosphorescent, emitting light in the dark
 Pilous, hairy
 Pillar, in univalve shells, is the internal continuation of the inner lip, and extends to the apex
 Pinnated, winged
 Pisciform, fish-shaped
 Plaited, folded
 Plaits, folds
 Plantigrade, walking on the soles of the feet
 Plicated, folded or plaited, as the plaits on the pillar of the volute, &c.
 Plumose, having a feathery appearance
 Polythalamous, divided into several chambers
 Porcate, marked with raised longitudinal lines
 Porrected, projecting
 Prehensile, hanging
 Prismatic, having a changing play of colours as in the prism
 Produced, lengthened out
 Protractile, capable of being exerted and retracted
 Protrude, to thrust forward
 Punctated, with small hollows like the punctures of a thimble

Pupa, the aurelia, or third condition of an insect

Pyriform, pear-shaped

Quadrangular, having four right angles

Quadrate, square

Quadruplicated, having four plaits

Radiated, rayed, furnished with rays

Radicated, is when a shell is fixed by its base to another body

Ramose, branching

Rectangular, having right angles

Recurvent, bent backwards

Recurvated, bowed back

Recurved, thrown backwards

Recurvours, bent backwards

Reflected, thrown backwards or bent back

Reflex, } the same as *recurvated*,

Reflexed, } the same as *recurvated*,

Refracted, abruptly bent, as if broken

Reniform, kidney-shaped

Repand, with a serpentine margin

Replicated, folded or plaited so as to form a groove or channel

Reticated, formed like a piece of network

Retractile, capable of being drawn back

Retractility, capacity of being drawn back

Retroflected, bent backwards

Retrouse, cocked up, turned up

Retroverted, turned back

Refundated, blunted or turned at the edge

Retuse, ending in an obtuse sinus

Revolute, rolled backwards

Rhomb, a parallelogram or quadrangular figure

Rhombick, shaped like a rhomb

Rhomboidal, approaching in shape to a rhomb

Ribbed, having longitudinal or transverse ridges

Ridge, the top of any thing, as the top of the back or spine

Rostrum, the beak or bill of a bird, in conchology, the prolongation of the lip

Rostrated, beaked

Rotund, round, circular, spherical

Rudimentary, the commencement of the first elements of any thing

Rufous, of a reddish colour

Rugose, rugged, full of wrinkles

Ruminating animals, are those which chew the cud

Sac, a small bag, or pouch

Saccul, leaping, bounding, moving by leaps

Sanguineous, of a blood-colour, resembling blood

Sanguineous, bloody, constituting blood, abounding in blood

Scabrous, rough, rugged, harsh, or like a file

Scalloped, indented at the edges

Scorbiculous, pitted, having the surface covered with hollows

Scutellated, } shield-shaped

Scutelliform, } shield-shaped

Seam, the line formed by the union of the valves of shells

Securiform, axe-shaped

Secretory, belonging to secretion

Semi, is used in composition in the sense of half

Semi-cordate, half heart-shaped

Semi-cylindrical, half cylindrical, or a cylinder cut through length ways

Semi-lunar, shape of a half moon

Semi-orbicular, the shape of a half-globe

Semi-pellucid, somewhat pellucid or shining

Septiform, in the shape of a partition

Serrated, like the teeth of a saw

Serrulated, very minutely serrated

Sessile, sitting, or seated

Seta, a bristle

Setaceous, bristly, covered with bristles

Setiferous, bearing bristles

Setose, covered with bristles

Sinister, the left valve in conchology

Sinistral, of or belonging to the left

Sinuated, bent in and out

Sinus, a groove or cavity

Siphunculus, a cylindrical canal, perforating the partition in polythalamous shells

Solitary, applied to parts which are single, as teeth, bivalve shells, &c.

Snag, a short branch of a deer's horn

Spatulate, rounded and broad at the top, and becoming narrow like a spatula or battledore

Spatuliform, } battledore shaped

Spatulous, } battledore shaped

Species, a collection of organized beings, derived from one common parentage, characterized by one peculiar form

Spiracles, orifices in the heads of whales, and other animals for breathing through

Spiral, twisted like a cork screw

Spine, the back bone

Spiny, thorny, covered with thorn-like processes.

Spinous, having spines like a hedge-hog

Squamose, scaly, covered with scales

Stellated, starred, consisting of star-like figures

Striated, scored, or covered with fine thread-like lines

Styliferous

Sub, in composition, means almost, or approaching to, as sub-globose

Sub-arcuated, somewhat arched

Sub-conic, somewhat conical

Sub-diaphanous, somewhat transparent or clear

- Sub-external, somewhat external**
Sub-lobate, somewhat rounded with edges
Sub-orbicular, somewhat spherical
Sub-quadrated, somewhat square
Sub-quadrangular, somewhat four-angled
Sub-rotund, somewhat round
Sub-triangular, somewhat triangular
Subulate, awl-shaped
Sulcated, furrowed
Sulci, furrows
Summit, tip or apex
Suture, a hollow line of division, in univalve shells, the spiral line which separates the whorls.
- Talon, the claw of a bird, generally used to birds of prey**
Teats, the nipples of animals which suckle their young
Temporal, relating to the temples of the head
Tentacula, feelers or horns of snails, &c.
Tesselated, chequered like a chess-board
Testaceous, consisting of carbonate of lime and animal matter, as in the shells of molluscous animals
Tetradactyle, four-fingered
Tetragonal, four cornered
Terminal, at the end or termination
Tissue, any interwoven substance
Torose, swelling out, knobs or protuberances
Tortuosity, wreath, flexure
Tortuous, twisted, wreathed, winding
Trachea, the wind pipe or gullet
Tranchant, cutting
Transverse, placed across or cross-ways; in conchology when the breadth of a shell is greater than its length it is called transverse
Trapeziform, shaped like a trapezium
Tricuspidated, three-pointed
Trigonal, having three angles
Triturate, to grind any substance as with the rubbing of the teeth
Truncated, stunted, cut short, or abruptly off at the end
Tubercle, a little knot or pimple
Tuberculated, knotted, pimpled
Tuberosities, prominent knots or excrescences
Tubulate, tubulous or hollow
Tunicated, coated
- Turbinated, shaped like a top or pear**
Turgid, swollen
Umbilicated, having a hollow like a navel
Umbo, in bivalve shells, the round part which turns the hinge
Umbonate, based, having a raised knot in the centre
Unctuous, greasy
Undulated, waved, having a waved surface
Ungulate, shaped like a horse's hoof
Unilocular, having one chamber, or compartment
Univalve, consisting of one valve or piece
Urceolate, swelling at the middle like a pitcher.
- Varex, a longitudinal rib, in univalve shells**
Varices, longitudinal ribs
Variety, is when one species differs in some little degree from that of another,
Vascular, consisting of vessels
Vaulted, like the roof of one's mouth
Venter, the belly
Ventral, belonging to the belly
Ventricose, inflated, swelled in the middle
Vermiform, worm-shaped
Verrucose, warted
Vertebræ, the bones which compose the spine or back-bone
Vertebrated, provided with vertebræ
Vertex, the top or highest point, as the tip of a cone
Verticulated, whirled
Villose, } downy
Villous, }
Volutions, wreaths, or whorls of the spire of univalve shells
Vulva, a spatulated mark in several bivalve shells, formed when the valves are united on the posterior and anterior slopes
- Whorl, one of the wreaths or turnings of univalve shells**
- Zoned, surrounded with one or more girdles or belts.**

END OF VOL. I.

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